ORDER NO. VRD8907M148

Service Manual

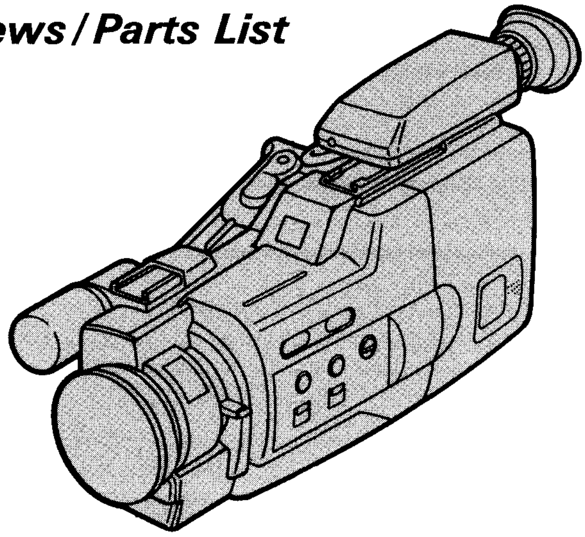
VHS-C Movie

Panasonic VHS C PAL

Hi-Fi HQ

NV-MC30 E/EP B/EW EG

General Description
Adjustment Procedures
Block / Schematic Diagrams
Exploded Views / Parts List



SPECIFICATIONS

ITEM	SPECIFICATION
POWER	Source: BATTERY; DC 9.6 V Consumption; Camera search mode; 10.5 W (Battery operation)
VIDEO RECORDING SYSTEM	4 rotary heads, helical scanning system PAL
Hi-Fi AUDIO RECORDING SYSTEM	4 rotary heads, helical scanning system
TAPE FORMAT	VHS-C Cassette Tape (Tape width 12.7 mm)
TAPE SPEED	SP mode: 23.39 mm/s LP mode: 11.70 mm/s Record/Playback Time SP mode: 30 min. with NV-EC30HG LP mode: 60 min. with NV-EC30HG FF/REW Time less than 3 min. with NV-EC30HG
CAMERA	PICK-UP ELEMENT: CCD (Charge Coupled Device)
	STANDARD ILLUMINATION: 1,400 lux
	MINIMUM REQUIRED ILLUMINATION: 10 lux
	LENS: Built-in 6 : 1, Power Zoom Lens with MACRO Function, Auto Iris, Auto Focus System, F1.2 (9～54 mm), Lens Front Diameter/ϕ49 mm
	VIEW FINDER: 2/3″ Electric View Finder

ITEM	SPECIFICATION
VIDEO	HEADS: 4 rotary heads, 1 flging erase head
	OUTPUT: 8 PIN CONNECTOR; 1.0 Vp-p 75Ω unbalanced
AUDIO	HEAD: 4 rotary heads (Hi-Fi Audio) 1 Stationary head (Normal Audio)
	INPUT: MIC IN (M3); −70 dB, 4.7 kΩ unbalanced
	OUTPUT: 8 PIN CONNECTOR; −8 dB 600Ω unbalanced
WEIGHT	Approx. 1.4 kg (without Battery Pack)
DIMENSIONS	125(W) × 159(H) × 283(D) mm
STANDARD ACCESSORIES	1 pc. AV Output Cable 1 pc. AC Adaptor 1 pc. Battery Pack 1 pc. Shoulder Strap 1 pc. Battery for Clock & VHS-C Adaptor 1 pc. VHS-C Cassette Adaptor 1 pc. VHS-C Cassette Tape 1 pc. System Case (NV-MC30B/EP ONLY) 1 pc. Earphone 1 pc. DC Input Cable 1 pc. RF Adaptor (NV-MC30B ONLY) 1 pc. RF Cable (NV-MC30B ONLY)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

INTRODUCTION

This service manual contains technical information which will allow service personnels to understand and service this model.
Section 1 presents you with some general information of features and controls, enabling you to become familiar with each function.
Section 2 contributes to your mechanical and electrical adjustment as well disassembly and replacement procedures.
In the case of very common information relating to other models like mechanical adjustments, please refer to each service manual.
Section 3 contains block diagrams which offers you information for checking and understanding each circuit. Schematic diagrams which give you detailed information such as waveforms, voltage data, function e.t.c...
Section 4 contains exploded views and parts list.
Please place orders using the parts list and not the drawing reference numbers.
If the circuit is changed or modified, this information will be followed by supplementary service manual to be filed with original service manual.

CONTENTS

TECHNICAL INFORMATION

SERVICE INFORMATION

SECTION 1 GENERAL DESCRIPTION

1-1. CONTROLS AND COMPONENTS 1-1
1-2. ELECTRONIC VIEWFINDER 1-4
1-3. SETTING OF THE DATE AND CLOCK & RECORDING THE DATE/CLOCK INDICATIONS 1-5
1-4. HOW TO USE HANDGRIP (OPTIONAL) 1-6
1-5. USING THE CHARACTER GENERATOR (OPERATIONAL) 1-6
1-6. VHS-C MOVIE SYSTEM ACCESSORIES 1-6

SECTION 2 ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY PROCEDURES 2-1
2-2. PROCEDURES FOR CLEANING UPPER CYLINDER UNIT 2-6
2-3. REPLACEMENT AND ADJUSTMENT PROCEDURES 2-6
SERVICE FIXTURES & TOOLS 2-19
2-4. ELECTRICAL ADJUSTMENT PROCEDURES 2-20
LOCATION OF TEST POINTS & CONTROLS (1) 2-37
LOCATION OF TEST POINTS & CONTROLS (2) 2-39

SECTION 3 BLOCK DIAGRAMS & SCHEMATIC DIAGRAMS

3-1. CAMERA STAGE BLOCK DIAGRAM 3-1
3-2. LUMINANCE & CHROMINANCE BLOCK DIAGRAM 3-4
3-3. SYSTEM CONTROL BLOCK DIAGRAM 3-9
3-4. SERVO BLOCK DIAGRAM 3-12
3-5. Hi-Fi AUDIO BLOCK DIAGRAM 3-15
3-6. POWER SUPPLY BLOCK DIAGRAM 3-18
3-7. CAMERA OPERATION C.B.A. 3-20
3-8. CAMERA OPERATION SCHEMATIC DIAGRAM 3-21

3-9. AUTO FOCUS SCHEMATIC DIAGRAM 3-23
3-10. AUTO FOCUS C.B.A. 3-25
3-11. PROCESS SCHEMATIC DIAGRAM 3-29
3-12. PROCESS C.B.A. 3-33
3-13. SENSOR SCHEMATIC DIAGRAM 3-37
3-14. SENSOR C.B.A. 3-39
3-15. AWT (3) SCHEMATIC DIAGRAM 3-41
3-16. AWT (3) C.B.A. 3-41
3-17. E.V.F. SCHEMATIC DIAGRAM 3-43
3-18. E.V.F. C.B.A. 3-45
3-19. VTR OPERATION SCHEMATIC DIAGRAM 3-47
3-20. VTR OPERATION C.B.A. 3-49
3-21. SUB OPERATION SCHEMATIC DIAGRAM 3-50
3-22. SUB OPERATION C.B.A. 3-50
3-23. POWER SUPPLY SCHEMATIC DIAGRAM 3-51
3-24. SERVO SCHEMATIC DIAGRAM 3-54
3-25. SYSTEM CONTROL SCHEMATIC DIAGRAM 3-57
3-26. SUB VIDEO SCHEMATIC DIAGRAM 3-61
3-27. AUDIO SCHEMATIC DIAGRAM 3-63
3-28. MAIN [POWER SUPPLY, SERVO, SYSTEM CONTROL, SUB VIDEO, AUDIO Section] C.B.A. 3-66
3-29. LUMINANCE, CHROMINANCE & PAL JOG SCHEMATIC DIAGRAM 3-70
3-30. LUMINANCE & CHROMINANCE PACK C.B.A. & PAL JOG PACK C.B.A. 3-75
3-31. VIDEO HEAD AMP SCHEMATIC DIAGRAM 3-79
3-32. VIDEO HEAD AMP C.B.A. 3-81
3-33. Hi-Fi AUDIO HEAD AMP C.B.A. 3-81
3-34. Hi-Fi AUDIO HEAD AMP SCHEMATIC DIAGRAM 3-83
3-35. Hi-Fi AUDIO SCHEMATIC DIAGRAM 3-85
3-36. Hi-Fi AUDIO C.B.A. 3-87
3-37. MOTOR DRIVE SCHEMATIC DIAGRAM 3-89
3-38. MOTOR DRIVE C.B.A. 3-91
3-39. CIRCUIT BOARD LAYOUT 3-93
3-40. CAMERA INTERCONNECTION SCHEMATIC DIAGRAM 3-95
3-41. VTR INTERCONNECTION SCHEMATIC DIAGRAM 3-97
3-42. ICs & TRs INFORMATION 3-100

SECTION 4 EXPLODED VIEWS & PARTS LIST

4-1. EXPLODED VIEWS 4-1
  ❶ VTR MECHANISM SECTION 4-1
  ❷ CAMERA LENS SECTION 4-2
  ❸ CHASSIS & FRAME SECTION 4-3
  ❹ E.V.F. SECTION 4-5
  ❺ PACKING PARTS & ACCESSORIES SECTION (NV-MC30B/EP) 4-6
  ❻ PACKING PARTS & ACCESSORIES SECTION (NV-MC30E/EG/EW) 4-7
4-2. MECHANICAL REPLACEMENT PARTS LIST 4-8
4-3. ELECTRICAL REPLACEMENT PARTS LIST 4-11

Technical Information

Service Caution

1. Servicing the VTR Section

When servicing the VTR section, connection of the extension cables and Y/C separator are necessary as shown in Fig. S1, S2.

Servicing Fixtures (VTR Section)

PART NO.	PART NAME	PCS	CONNECTION
VFK0493	Extension Cable (22P)	1	P2001~P2601
VFKS0075	Extension Cable (16P)	1	P5001~P3501
VFKS0060	Extension Cable (2P)	2	P6009~LOADING MOTOR P6013~SAFETY TAB SW
VFK0499	Extension Cable (3P)	2	P6005~MODE SELECT SW P6010~REEL SENSOR
VFK0304	Y/C Separator	1	———
VFK0430	Extension Cable (14P)	1	P3502~VFKS0074
VFKS0074	Connector	1	Y/C Separator~VFK0430

Fig. S1

Connection Method of Extension Cables

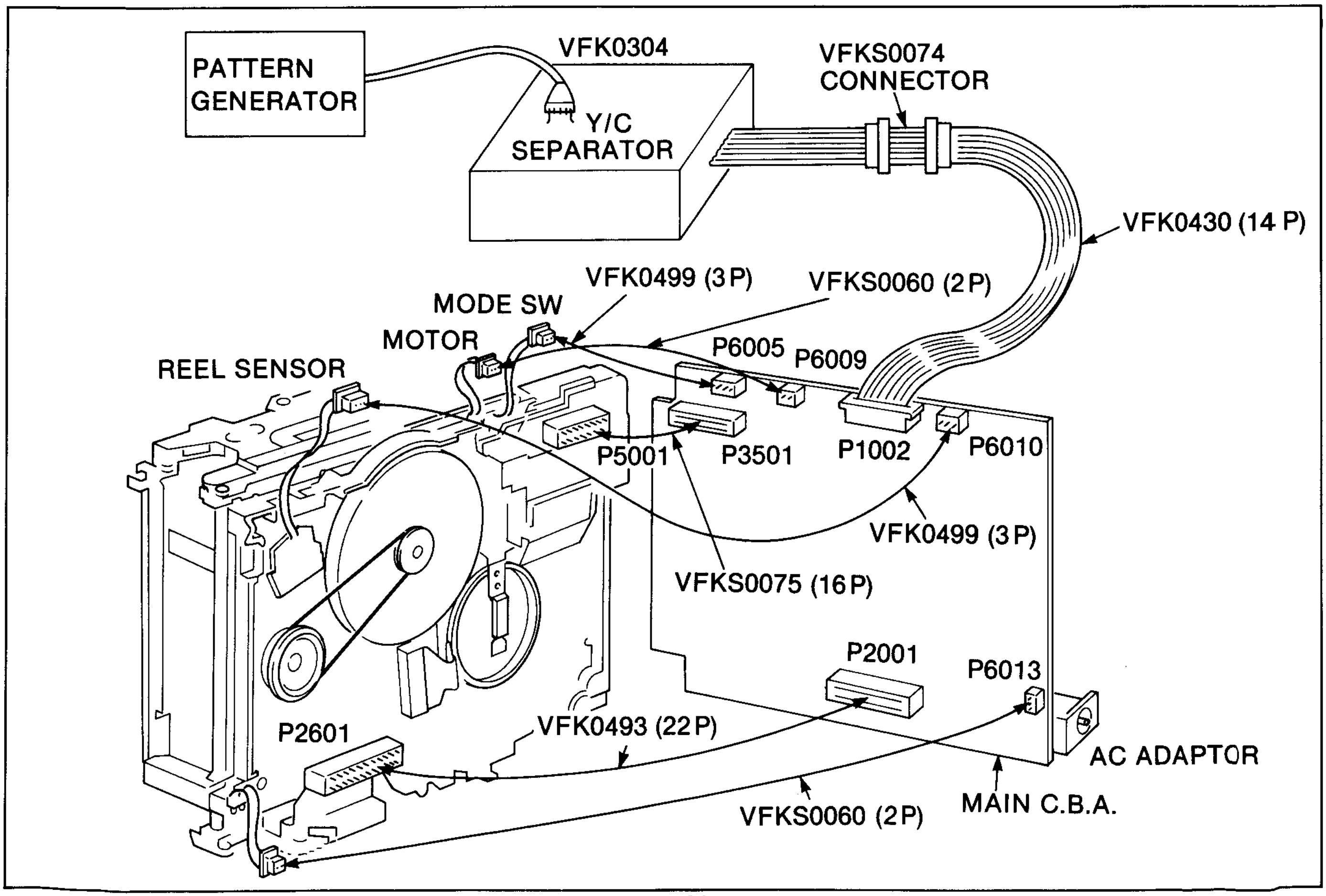

PATTERN GENERATOR
VFK0304
Y/C SEPARATOR
VFKS0074 CONNECTOR
VFK0430 (14 P)
VFK0499 (3P)
VFKS0060 (2P)
MODE SW
MOTOR
REEL SENSOR
P6005
P6009
P5001
P3501
P1002
P6010
VFK0499 (3P)
VFKS0075 (16P)
P2001
P6013
P2601
VFK0493 (22P)
AC ADAPTOR
VFKS0060 (2P)
MAIN C.B.A.

Fig. S2

2. Servicing the Camera Section

When servicing the camera section connection of extension cables and Diffusion Plate are necessary as shown in Fig. S3, S4.

Servicing Fixture (Camera Section)

PART NO.	PART NAME	PCS	CONNECTION
VFKS0051	Extension Cable (3 P)	1	P704~ACTUATOR UNIT
VFKS0052	Extension Cable (6 P)	1	P701~FOCUS & ZOOM SENSOR
VFK0503	Extension Cable (5 P)	1	FP302~FP601
VFK0380	Extension Cable (18 P)	1	B301~B201
VFK0497	Extension Cable (6 P)	1	P703~FOCUS MOTOR & IRIS MOTOR
VKW1049	Diffusion Plate	1	———

Fig. S3

Connection Method of Extension Cables

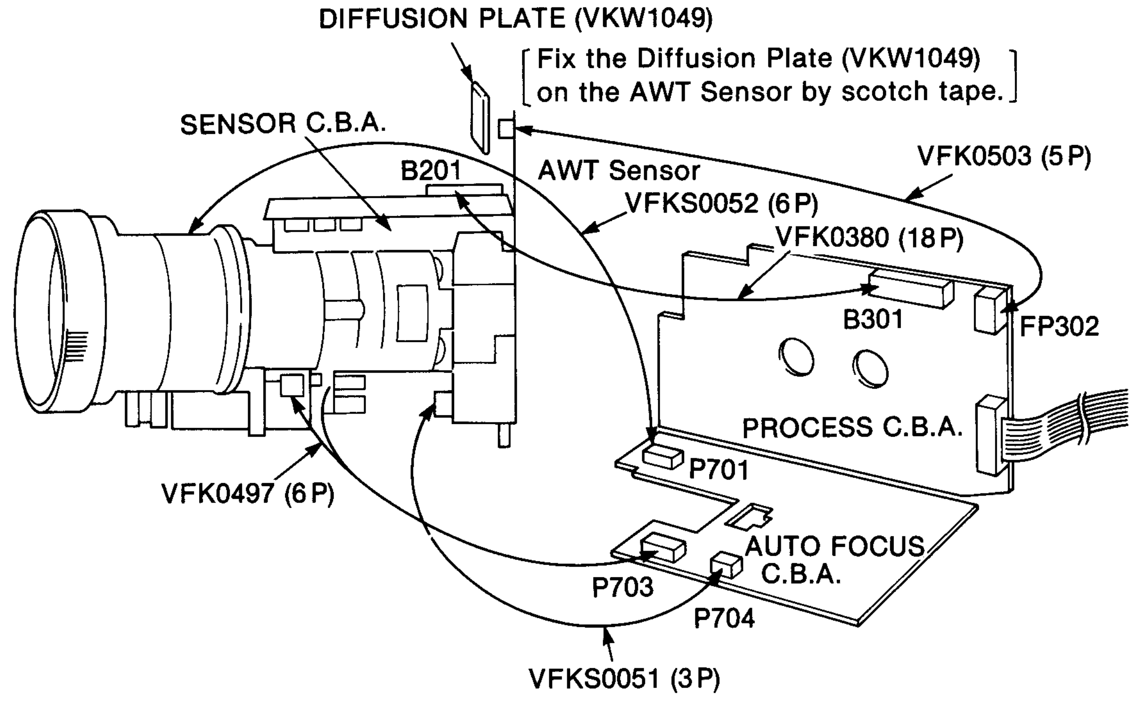

DIFFUSION PLATE (VKW1049)
Fix the Diffusion Plate (VKW1049) on the AWT Sensor by scotch tape.
SENSOR C.B.A.
B201
AWT Sensor
VFK0503 (5 P)
VFKS0052 (6 P)
VFK0380 (18 P)
B301
FP302
PROCESS C.B.A.
P701
VFK0497 (6 P)
AUTO FOCUS C.B.A.
P703
P704
VFKS0051 (3 P)

Fig. S4

3. How To Use Camera Holder Arm (VFK0431)

This Camera Holder Arm which is adjustable the span must be mounted to VFK0382 (Camera Holder of NV−M5) and it can be used with VFK0432 for camera adjustments or checking.

(A) --- VFK0432 Holder Spacer (2pcs.)
(B) --- VFK0431 Camera Holder Arm
(C) --- XSN26+18 Screw (2pcs.)
(D) --- VFK0382 Camera Holder

1. Fix the Holder Arm (4) and (5) temporarily by screw (1) as shown in Fig.S5.
2. Mount the Camera Holder Arm (B) to the Camera Holder (D) by screws (2) and (3) as shown in Fig. S6.
3. Tightn the screws (C) with the Holder Spacers (A) as shown in Fig. S5.

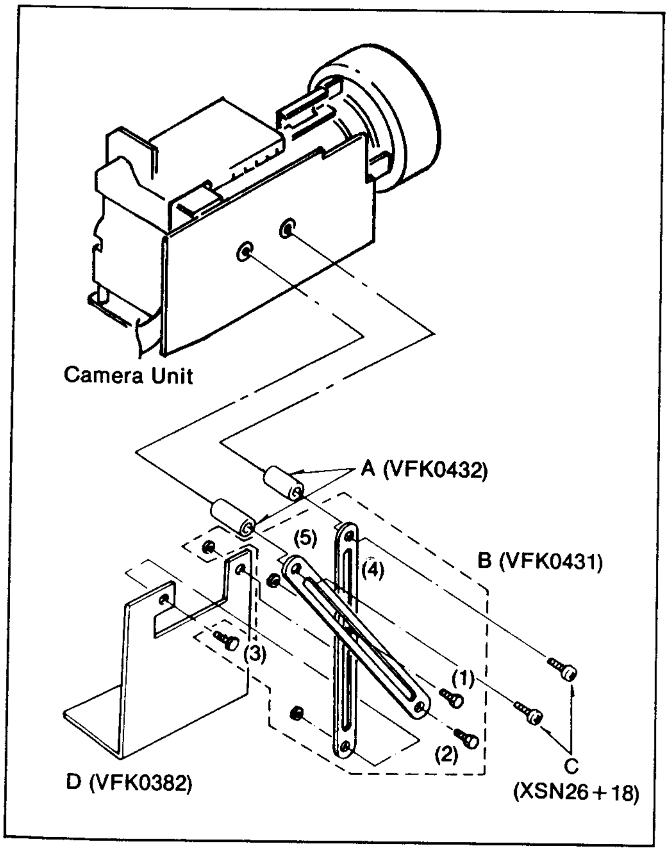

Camera Unit
A (VFK0432)
(5)
(4)
B (VFK0431)
(1)
(2)
(3)
C
(XSN26+18)
D (VFK0382)

Fig. S5

4. How To Connect the Y/C Separator and Y/C Separator Connection Cable

When the Y/C Separator Connection Cable (VFKS0074) is used to connect to Y/C Separator the caution should be paid the following items:

*Cut off the marked portion of Y/C Separator output connector as shown in Fig.S7

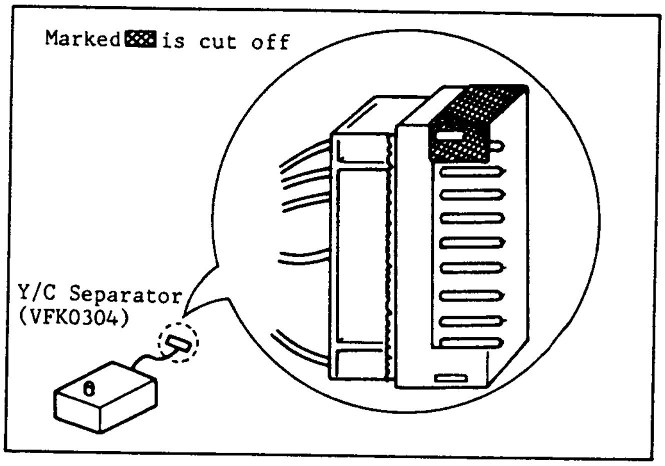

Marked ▨ is cut off
Y/C Separator
(VFK0304)

Fig. S7

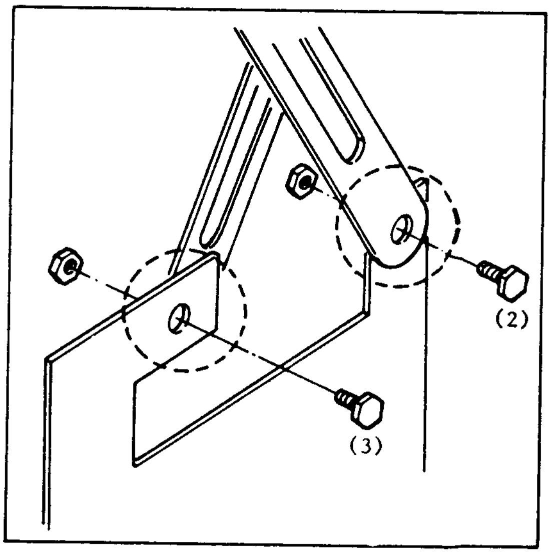


Fig. S6

5. Set Tracking Control to the Fixed position

If the Tracking Control is required to be in the fixed (neutral) position, push both of the tracking Control Up/Down Switchs, on the Main C.B.A., in at the same time in Playback Mode.

6. Manual Eject–Tape in and Carriage closed

1. Remove Cassette Cover by removing 2 Screws.
2. Push on upper end of Lock Lever to release cassette carriage.

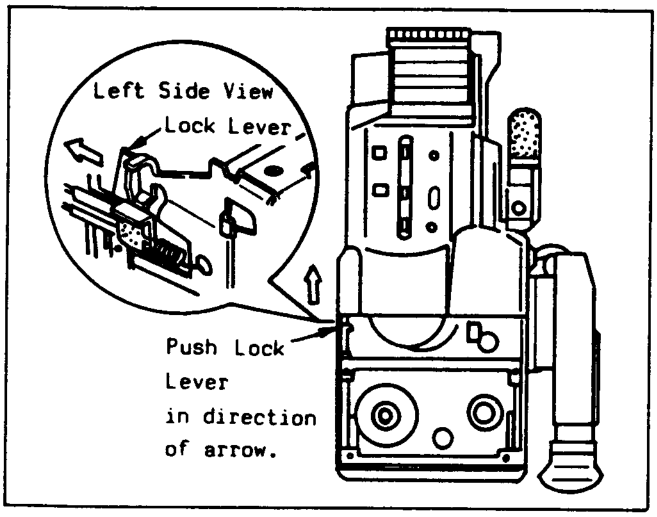


Fig. S8

7. Elimination of Tape slack

Before inserting the Cassette Tape in the VHS–C Movie, take up slack in the tape by turning the Takeup Tape Gear on the side of the Cassette Tape. Turn it in the direction of the arrow until no slack is evident and opposite reel begins to turn.

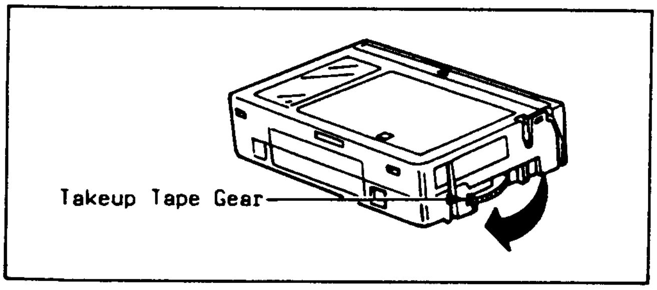


Fig. S9

8. Insertion (or Removal) of cassette Tape

As in Fig. 5, hold the tape vertically with fingers and thumb to insert or remove the tape. (Be sure to eliminate slack before inserting the tape.)

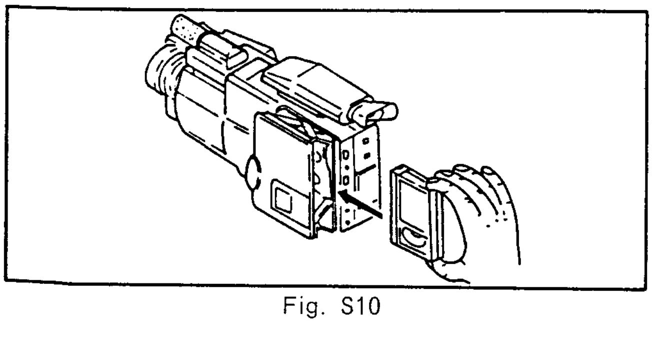


Fig. S10

9. Connection of the Flexible Cables to Trap Connectors

a. Removal

1. On the trap Connector, pull out on both ends of the Locking Tab Surrounding the cable end to release the Trap on the Connector. Then pull Flexible Cable out to remove as shown in Fig. 6.

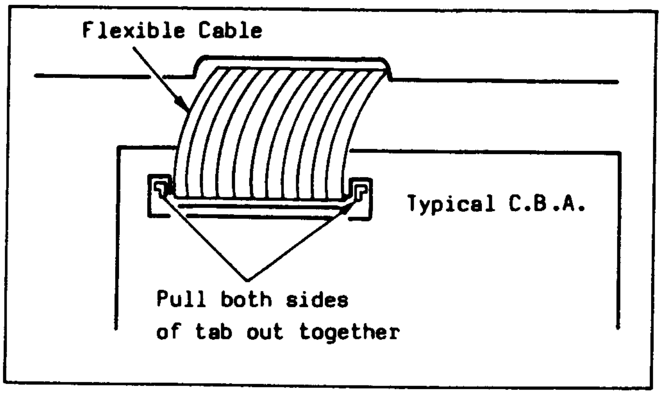


Fig. S11

b. Installation

1. Insert the end of the Flexible Cable into the Trap Connector so it lays smoothly across the slot.
2. Press the middle of the cable firmly against the Trap Connector slot, and hold it securly.
3. Without pinching the Cable, press the Locking Tabs in against the Trap Connector until both ends snap into their locked positions.
4. Pull lightly on the Cable to check for positive connection.

Note:

1. Take care when removing or installing the Flexible Cable to prevent Cable damage.

10. Service of Operation Bracket Unit

When removing and reinstalling the Operation Bracket Unit and Switch Cover, first, install the Switch Cover over the Operation Key portion (CAMERA MODE) of the Operation Bracket Unit, and then install assembly parts.

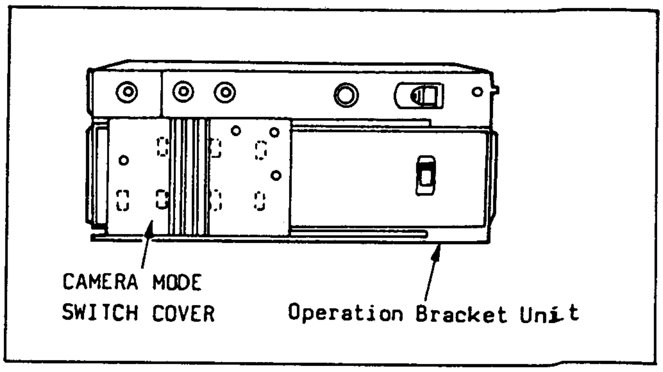


Fig. S12

SERVICE INFORMATION

1-1.HOW TO CHECK THE CRACKED CHIP PART

(1) Apply heat to the soldered portions of chip part using a soldering iron for about 2–3 seconds.
(2) If the chip part is faulty,it will be broken or cracked.

Caution: Do not leave soldering iron on the PCB too long as damage may occur to the PCB or the chip parts.

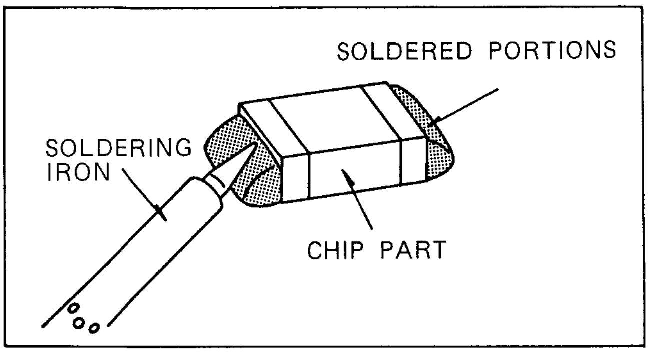

SOLDERED PORTIONS
SOLDERING IRON
CHIP PART

FIG. G1

Note: Regarding intermittent faults
The main causes of these faults are poor soldering and cracked chip parts.

1-2.HOW TO REPLACE THE CHIP PART

1) REMOVAL (RESISTOR, CAPACITOR, etc...)

(1) Presolder the one side of soldering portion for chip part and grasp the chip part by tweezers.

(2) Melt the presoldered portion. And then remove the chip part with a twisting motion while melting the soldering portion of another side quickly.

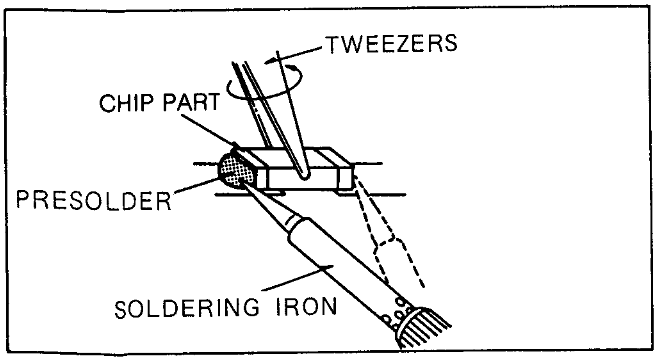

TWEEZERS
CHIP PART
PRESOLDER
SOLDERING IRON

FIG. G2

2) REMOVAL (transistor, diode, etc...)

(1) Grasp the chip part with tweezers and melt the solder of one lead.

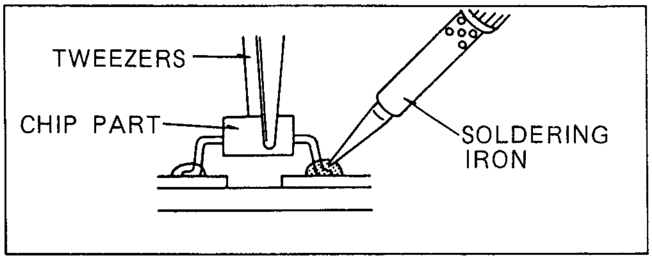

TWEEZERS
CHIP PART
SOLDERING IRON

FIG. G3

(2) Lift the side of that lead upward.

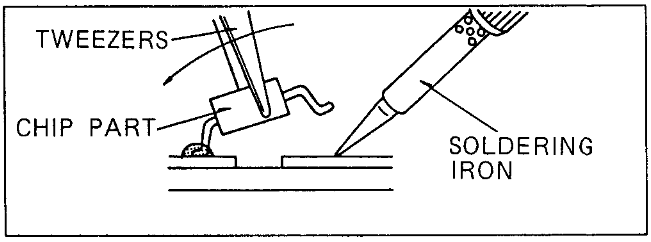

TWEEZERS
CHIP PART
SOLDERING IRON

FIG. G4

Caution: Do not lift the chip part too high as damage may occur to the PCB or the leads that are still soldered on the PCB.

(3) Simultaneously heat the solder of the two remaining leads and lift part to remove.

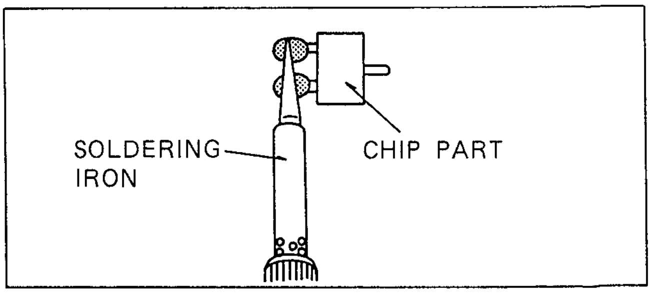

SOLDERING IRON
CHIP PART

FIG. G5

3) INSTALLATION

(1) Presolder the one side of contact point on the circuit board.

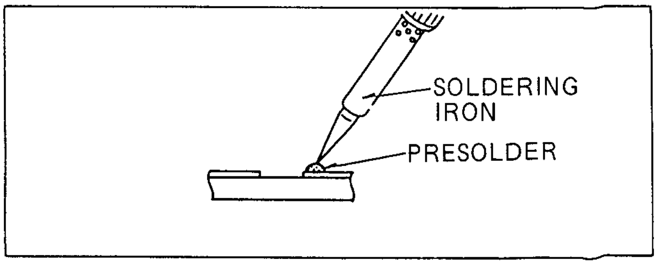

SOLDERING IRON
PRESOLDER

FIG. G6

(2) To install the chip part,hold in position using tweezers, apply heat to the pre-soldered portions using a fine tip soldering iron.
(3) Solder the other side of the chip part.
(4) Check your soldering.

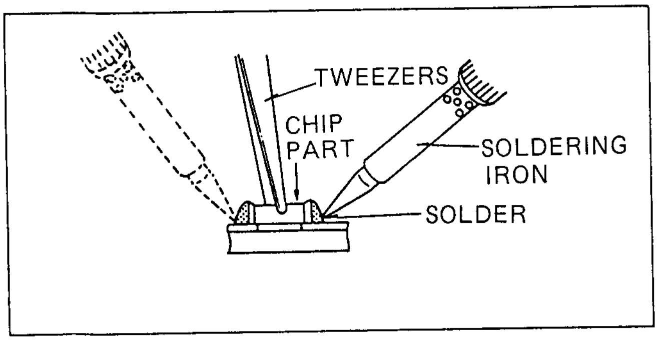

TWEEZERS
CHIP PART
SOLDERING IRON
SOLDER

FIG. G7

1-3.HOW TO REMOVE THE FLAT-IC

(WITH HOT-AIR FLAT-IC DESOLDERING MACHINE)

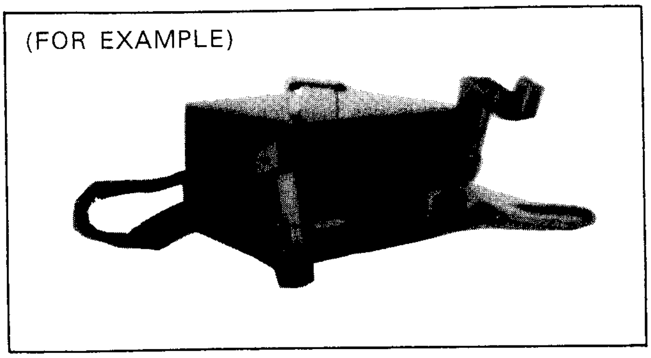

(FOR EXAMPLE)

FIG. G8

(1) Prepare the HOT-AIR FLAT-IC DESOLDERING MACHINE. And then apply hot air to FLAT-IC about 5 ~ 8 seconds.

(2) Remove the FLAT-IC with tweezers while applying the hot air.

Caution: Do not supply the hot air to the chip parts around the Flat-IC for long time as as damage may occur to the chip parts around the Flat -IC.

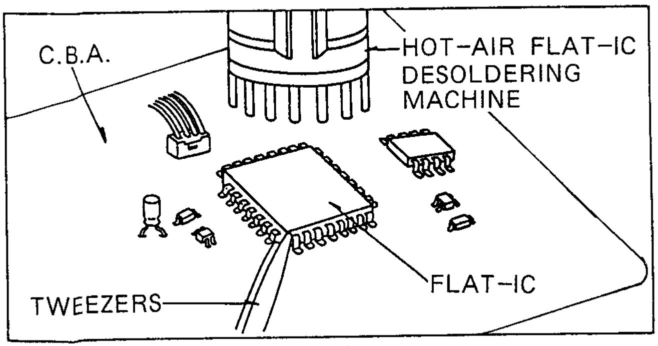

C.B.A.
HOT-AIR FLAT-IC DESOLDERING MACHINE
TWEEZERS
FLAT-IC

FIG. G9

(WITH SOLDERING IRON)

(1) Using solder braid remove the solder from all pins of the Flat-IC.
When you use the solder flux which is applied to all pins of the Flat-IC,you can remove it easily.

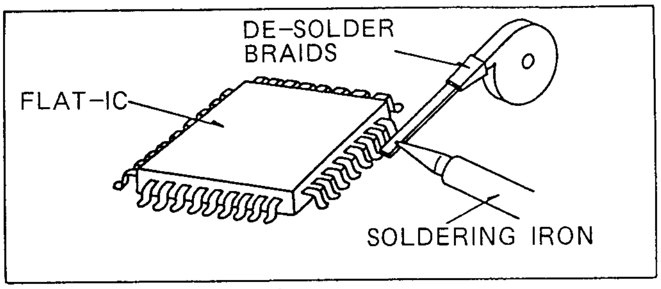

DE-SOLDER BRAIDS
FLAT-IC
SOLDERING IRON

FIG. G10

(2) Lift each lead of the Flat-IC upward one by one using a sharp pin or non solder wire(iron wire),while heating the pins using a fine tip soldering iron or a hot air blower.

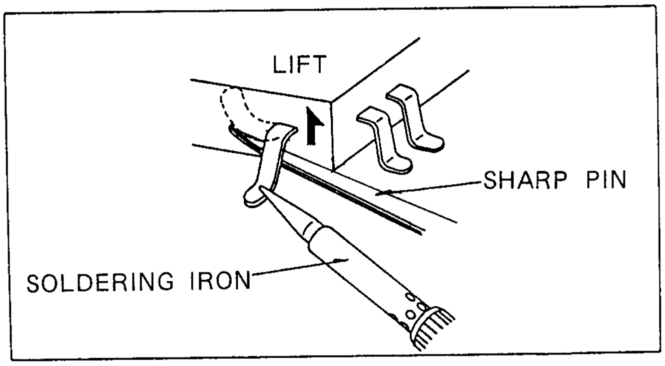

LIFT
SHARP PIN
SOLDERING IRON

FIG. G11

(WITH IRON WIRE)

(1) Affix the wire to workbench or solid mounting point as shown in FIG.G12.
(2) Pull up wire as the solder melts so as to lift the IC lead from the PCB contact pad,while heating the pins using a fine tip soldering iron or hot air blower.

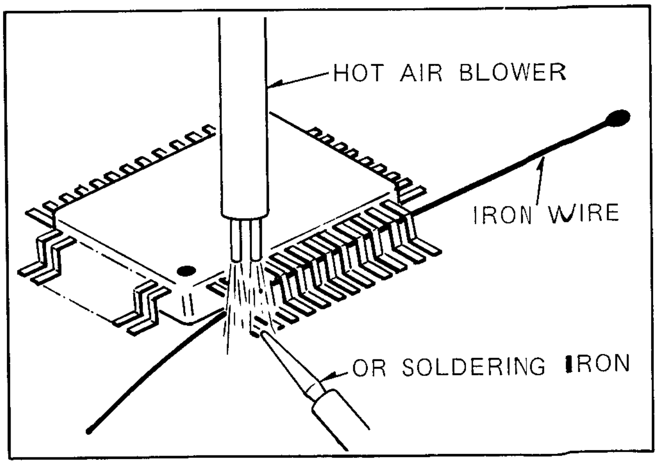
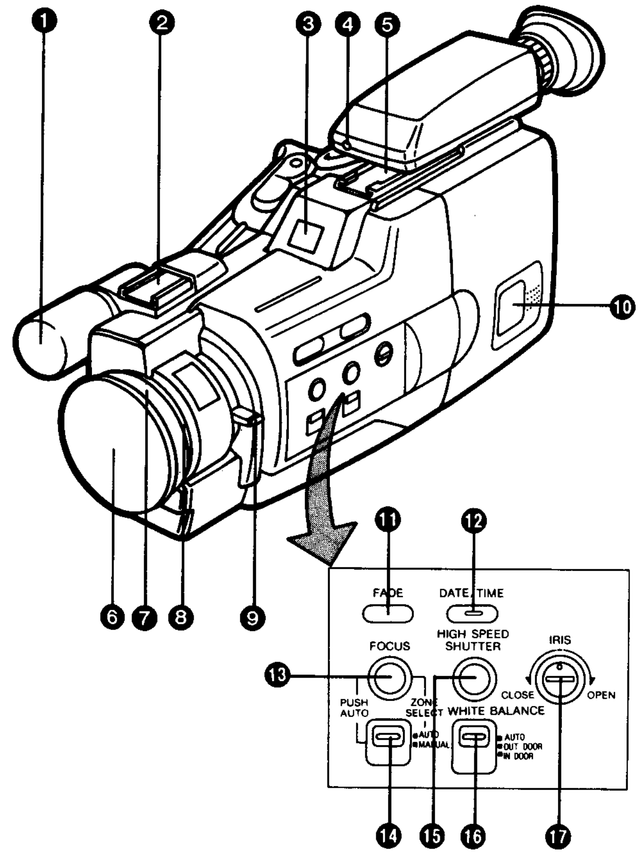

HOT AIR BLOWER
IRON WIRE
OR SOLDERING IRON

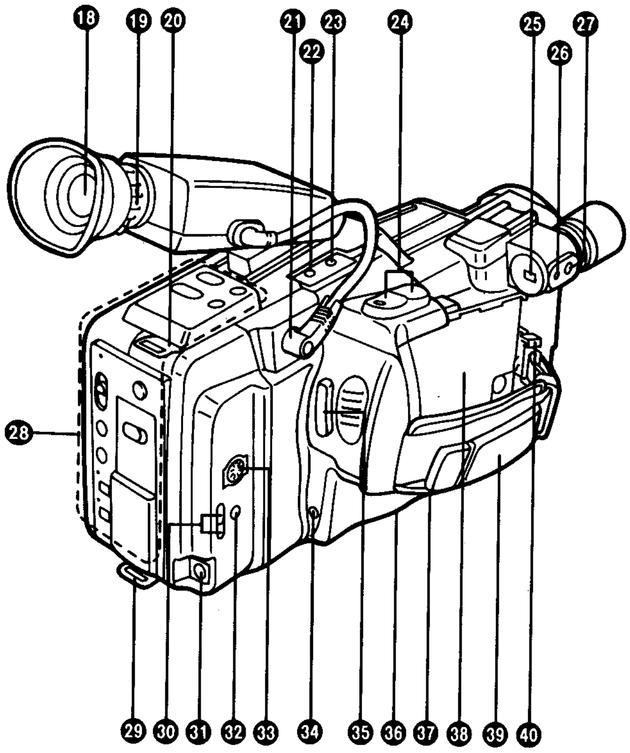
FIG.G12

Note: When using a soldering iron care must be taken to ensure that the Flat IC is not being held by glue before it is the PCB may be damaged if force is used.

SECTION 1
GENERAL DESCRIPTION

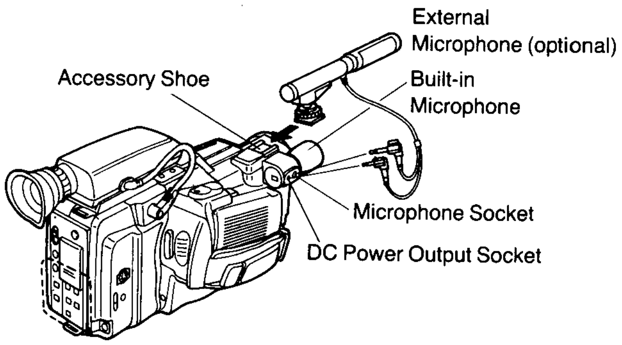
1-1. CONTROLS AND COMPONENTS


①
②
③
④
⑤
⑩
⑥
⑦
⑧
⑨
⑪
⑫
FADE
DATE/TIME
HIGH SPEED SHUTTER
FOCUS
IRIS
⑬
PUSH AUTO
ZONE SELECT
CLOSE
OPEN
WHITE BALANCE
AUTO
MANUAL
AUTO
OUT DOOR
IN DOOR
⑭
⑮
⑯
⑰


⑱
⑲
⑳
㉑
㉒
㉓
㉔
㉕
㉖
㉗
㉘
㉙
㉚
㉛
㉜
㉝
㉞
㉟
㊱
㊲
㊳
㊴
㊵

① Built-in Microphone
② Accessory Shoe

Audio Dubbing can be performed by using the built-in microphone or an external microphone. If an external microphone is connected, the built-in microphone is automatically switched off.
If an external microphone equipped with DC power input plug is used, connect this plug to the DC Power Output Socket.


External Microphone (optional)
Accessory Shoe
Built-in Microphone
Microphone Socket
DC Power Output Socket

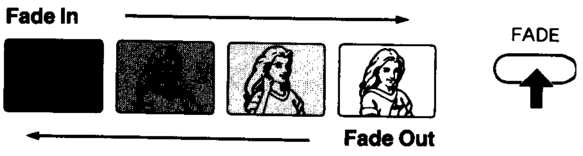
- The Accessory Shoe is designed for exclusive use with an external microphone. Do not mount anything but an external microphone on it.

③ White Balance Sensor Window
④ Tally Indicator
⑤ Accessory Shoe
⑥ Lens Cap
⑦ Lens Hood
⑧ Focus Ring
⑨ Manual Zoom Lever with Macro Button

Shooting Small Objects
The macro function allows shooting small plants and tiny insects. It is also possible to shoot photos from a photo album.
(The focus can be adjusted within a distance of 1.2 m.)

⑩ Cassette Compartment
⑪ Fade Button

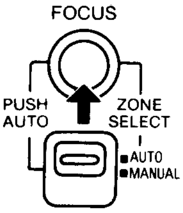
Fading out a scene to black is possible by keeping the Fade Button pressed, and fading in from black is operated by releasing this button.
The sound is also faded out and faded in together with the picture.

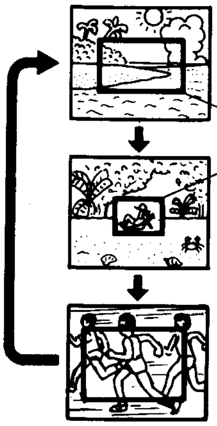

Fade In
FADE
Fade Out

⑫ Date/Time Selector

⑬ Focus Adjusting Button/Zone Selector

Focusing Zone Selection with the Focus Adjusting Button
The focus will automatically be adjusted to the object within the focusing zone.





Use this setting for ordinary shooting.

Focusing Zone Frame.

Use this setting for a small subject.

Use this setting for subjects with much movement and for panning and tilting.

⑭ Focus Mode Selector
⑮ High Speed Shutter Selector

The VHS-C Movie has 3 different shutter speeds:

HIGH SPEED SHUTTER

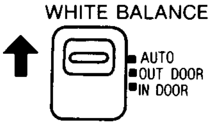
1/50 s normal shutter speed
1/500 s electronic high speed shutter
1/1000 s electronic high speed shutter

By repeatedly pushing the High Speed Shutter Selector, the shutter speed can be changed as follows:
1/500 sec.→1/1000 sec.→Normal

⑯ White Balance Mode Selector

The VHS-C Movie, like any other video camera, responds differently to the colours depending on the weather and the time, even under seemingly same sunlight. The adjustment necessary to assure natural colour rendition is called "white balance adjustment".

"**AUTO**" position	The white balance is automatically adjusted as the illumination changes.

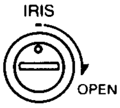


In certain cases, the use of the preset positions is recommended:

"INDOOR"	When shooting under the light from incandescent light bulbs or halogen lamps.
"OUTDOOR"	When shooting outdoors under the sunlight.

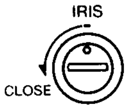
⑰ Iris Close/Open Control

When a Subject is backlit
Turn in the "OPEN" direction.



- When shooting a backlit subject, be careful that the lens is not aimed at extremely bright light.

When the picture is too bright
Turn in the "CLOSE" direction.



- For normal lighting conditions, this control should be set to the centre detent position. (Automatic adjustment)

⑱ Electronic Viewfinder
⑲ Eyepiece Corrector Control

This control makes it possible for people who wear glasses to adjust the eyepiece to their eyesight.

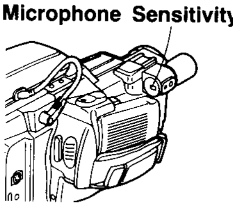
⑳ Metal Fitting for Shoulder Strap
㉑ EVF/Character Generator Terminal
㉒ Date Shift Button
㉓ Date Set Button
㉔ Power Zoom Control Buttons

To zoom to wide-angle, press the "W" Button.

To zoom to telephoto, press the "T" Button.

㉕ Microphone Sensitivity Selector

Microphone Sensitivity Selector

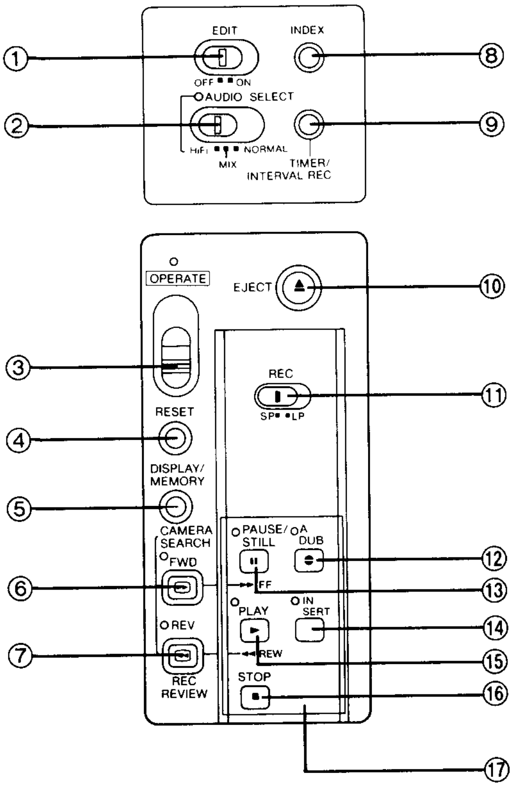


The sensitivity of the Microphone can be increased by setting the Microphone Sensitivity Selector to "HIGH". Usually, this selector is left in the "NORMAL" position.

- If this selector is switched from "HIGH" to "NORMAL" during recording, the recording of the audio signal will be interrupted for a few seconds. However, this is not due to any malfunction.
- In audio dubbing, the original sound on the normal audio track will be replaced.

㉖ DC Power Output Socket
㉗ External Microphone Socket

㉘ General Operation Controls


EDIT
INDEX
OFF ON
AUDIO SELECT
HiFi NORMAL
MIX
TIMER/
INTERVAL REC
OPERATE
EJECT
REC
SP LP
RESET
DISPLAY/
MEMORY
CAMERA
SEARCH
FWD
REV
REC
REVIEW
PAUSE/
STILL
A
DUB
FF
PLAY
IN
SERT
REW
STOP
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰

① Edit Switch

② Audio Select Switch

- **Playing Back a Tape on Which Insert Editing Was Performed**

  Select the sound to be played back with the Audio Select Switch.

  Hi-Fi: The newly inserted sound (stereo) is reproduced.

  NORMAL: The original sound (mono) is reproduced. (The indicator lamp goes out.)

  MIX: Both newly inserted sound and original sound are reproduced mixed together.
  - To ensure optimum sound reproduction, use the "Hi-Fi" position for ordinary use.

- **Playing Back a Tape on Which Audio Dubbing was Performed**

  Select the sound to be played back with the Audio Select Switch.

  Hi-Fi: The original sound is reproduced.

  NORMAL: The dubbed sound is reproduced. (The indicator lamp goes out.)

  MIX: Both original sound and newly dubbed sound are reproduced together.
  - To ensure optimum sound reproduction, use the "Hi-Fi" position for ordinary use.

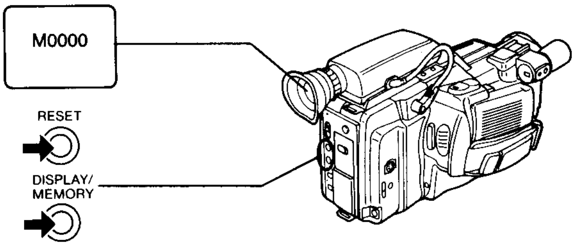
③ Operation On/Off Switch

④ Reset Button

Tape Counter and Memory Function

Press the Reset Button at a desired point and then press the Display/Memory Button.

- The Tape Counter is reset to "0000" and the Memory Indicator "M" appears.


M0000
RESET
DISPLAY/
MEMORY

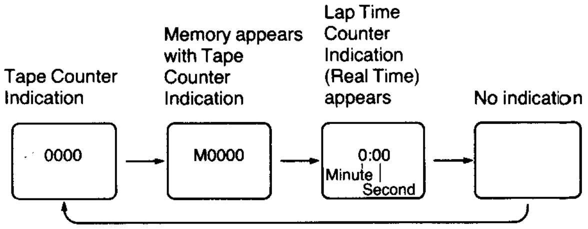
After pressing the Stop Button to end the playback, press the Rewind/Review Button.

- The tape will automatically stop at about the point where the Tape Counter reads "0000".

⑤ Display/Memory Button

Counter Indication

By repeatedly pressing the Display/Memory Button, the Counter Indication can be changed in the following sequence.


Tape Counter Indication
Memory appears with Tape Counter Indication
Lap Time Counter Indication (Real Time) appears
No indication
0000
M0000
0:00
Minute
Second

- The indication of the Lap Time Counter counts up only during recording.

⑥ Fast Forward/Cue Button

⑦ Rewind/Review Button

⑧ Index Signal Recording Button

The recording of index signals at the beginning of and during recordings makes possible the use of the VHS Index Search or the Intro Scan function when playing back the tape on a VTR equipped with the VISS function.

An index signal is recorded when one of the following operations is performed.

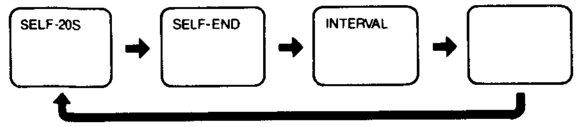
- When recording is started for the first time after the VHS-C Movie is turned on.
- When recording is restarted after the cassette is exchanged or the tape is played back.
- When recording is restarted after the Index Signal Recording Button was pressed during the recording pause mode.
- When the Index Signal Recording Button is pressed during recording.

In each of these cases, the "INDEX" indication will flash for a few seconds in the EVF.

- When recording index signals, space the signals at least 5 minutes in the LP mode and 2 minutes in the SP mode.

⑨ Timer/Interval Recording Button

■ **Pressing the Timer/Interval Recording Button repeatedly:**



- Depending on the TV set used, the top of the picture may become distorted when playing back scenes shot with the interval recording function.
- During the Interval Recording, the approximate elapsed recording time is displayed when the counter display is in the lap time counter display mode. The counter skips counting every tenth second, however, this is not a malfunction.

Self-Timer Recording
10 Seconds after the self-timer function is activated on the VHS-C Movie, the recording will start.
If the VHS-C Movie is mounted on a tripod, this handy function allows the person behind the camera to join the action that is being recorded.

Interval Recording
This recording function automatically makes recordings of approx. 1 second at 5-second intervals. This enables timer-lapse recordings, for example of the unfolding of a blossom, by shortening the recorded action to approx. 1/5th of the actual time it took.

⑩ Eject Button
⑪ Recording Speed Selector

- **SP:** For recording at the normal tape speed.
- **LP:** The recording time is twice as long as in the SP mode.
- Cassettes that were recorded on the VHS-C Movie in the LP mode cannot be played back on a VHS VTR that operates only in the SP mode.

⑫ Audio Dubbing Button
⑬ Pause/Still Button
⑭ Insert Button

- When insert editing on a tape that was recorded in the LP mode, picture noise will appear for an instant at the end of the inserted scene.

⑮ Play Button
⑯ Stop Button
⑰ Camera/VTR Selector Cover

Closed (as illustrated)	For camera recording.
Open	For other operations than camera recording.

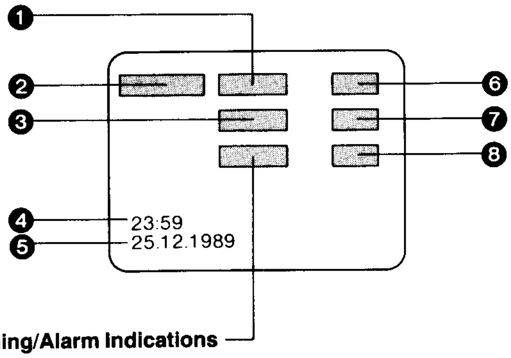
㉙ Metal Fitting for Shoulder Strap
㉚ Tracking Up/Down Buttons

- When the playback picture contains noise bar distortion as shown in the picture above, it can be eliminated by pressing the Tracking Up or Down Button.
  To return the tracking control to the former setting, press the two buttons simultaneously.
- When playing back a tape which has been recorded on another video recorder, it may not be possible to completely eliminate this distortion.

㉛ DC Input Socket
㉜ Remote Control Socket
㉝ RF/AV Adaptor Socket
㉞ Earphone Socket
㉟ Start/Stop Button
㊱ Battery Compartment for Auto Date/Clock
㊲ Tripod Receptacle
㊳ Battery Holder
㊴ Grip Belt
㊵ Battery Locking Lever

1-2. ELECTRONIC VIEWFINDER

The following indications are displayed in the Electronic Viewfinder (EVF) to inform you of the operating conditions of the VHS-C Movie.



Warning/Alarm Indications

BATT	There is little battery power left. The VHS-C Movie will be turned off in a few minutes. Replace the battery pack by a fully recharged one.
TAPE	It is impossible to record because the erasure prevention tab of the cassette is not intact.
END	During recording, the tape has almost reached its end. Replace the tape with a new one. The indication will remain lit when the tape has reached its end.
DEW	When condensation has formed inside the VHS-C Movie, the "DEW" indication will flash and a few seconds later, the unit will turn itself off.

❶ Remaining Battery Power/Index Indication

E---F	The "▬" indications begin to disappear from right to left as the power of the battery pack weakens.
INDEX	This indicator flashes when a recording is started or when the Index Signal Recording Button is pressed and it indicates that an index signal is being recorded.

❷ Self-Timer/Interval Indication

SELF-20S	Self-timer recording for 20 seconds.
SELF-END	Self-timer recording until the end of the tape.
INTERVAL	Recordings of approx. 1 second will be made at 5-second intervals.

❸ Counter Indication

M0123	Tape Counter
1:23	Lap Time Counter

❹ Clock Indications

❺ Date Indications

❻ Recording/Insert Indication

REC	Recording
– – –	Recording Pause
INST	Insert
– – –	Insert Pause

Camera Search Indication

– – →	In forward direction
← – –	In reverse direction

❼ Recording Mode Indication

SP	SP mode
LP	LP mode

❽ High Speed Shutter Mode Indication

1/500	1/500 sec.
1/1000	1/1000 sec.

Manual White Balance indication

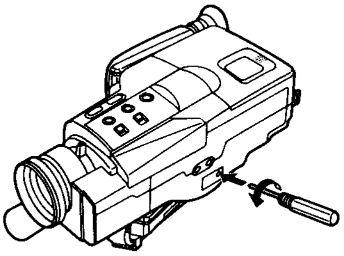
OUT	OUTDOOR
IN	INDOOR

- Some of the above indications may light up alternately at the same place in the EVF to indicate the corresponding operating condition or warning.

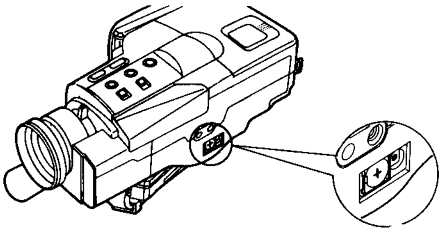
1-3. SETTING OF THE DATE AND CLOCK & RECORDING THE DATE/CLOCK INDICATIONS

How to Insert the Battery for the Clock Operation

❶ Remove the lid on the bottom of the VHS-C Movie with a screwdriver.



❷ Insert the "LR1130" size battery with the polarities (⊕ and ⊖) aligned correctly and then replace the lid.
- The clock starts working as soon as the battery is inserted.



The "LR1130" size battery (supplied) is necessary for the operation of the built-in digital clock, and to memorize the Date/Clock Indications when the VHS-C Movie is turned off.

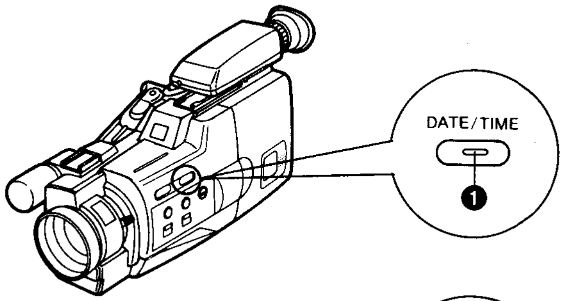
Cautions

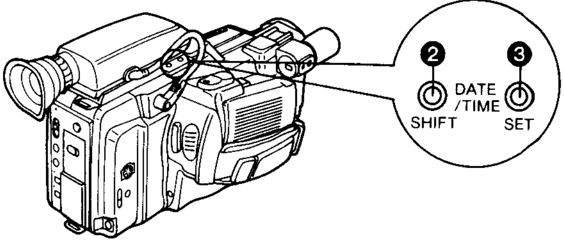
- When this battery is almost exhausted, the whole time and date indication will flash.
- When this battery is completely exhausted, the indication "PLEASE SET BATTERY" will appear.
- To make this indication disappear, press the Date/Time Selector twice.
- If this indication is still displayed after the battery has been replaced, turn the VHS-C Movie off and then on again.

CAUTION FOR BATTERY REPLACEMENT

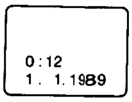
- The life of the battery is about one year, however, it depends on the frequency of use. Inspect and if necessary, replace the battery once a year.
- Load the new battery with their polarities (⊕ and ⊖) aligned correctly.
- Do not apply heat to battery, or internal short-circuit may occur.
- Remove spent battery immediately and dispose of it.

Setting of the Date and Clock





❶ When the Date/Time Selector is pushed, the indication shown on the right will appear in the EVF.



- If no battery is inserted, the indication "PLEASE SET BATTERY" will light up.

❷ When the Shift Button is pushed, the flashing portion displayed will be changed in the following sequence.

Year→Month→Date→Hour→Minute

❸ When the Set Button is pushed, the flashing portion displayed will be changed in the following sequence.

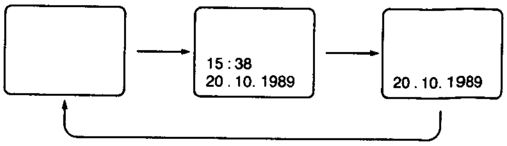
YEAR: 1989→1990→ . . . . →2086→1987→1988
MONTH: 1→2→ . . . . →12
DATE: 1→2→ . . . . →28→(29)→(30)→(31)
HOUR: 0→1→ . . . . →23
MINUTE: 00→01→ . . . . →59

- Repeat procedures ❷ and ❸ until all five items have been set.
- Once the time and date are set, press the Shift Button in response to a precise time signal so that the clock may begin to function.

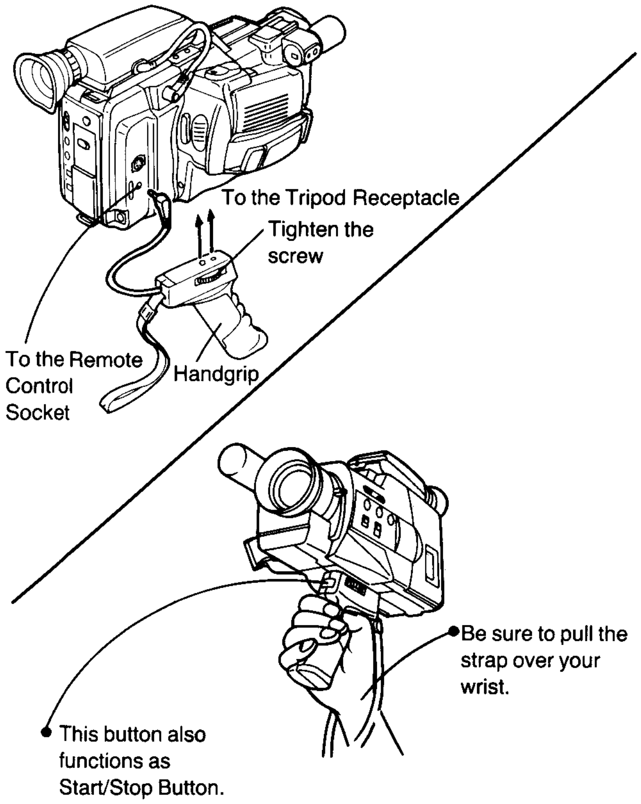
Recording the Date/Clock Indications

When the Date/Time Selector is pushed repeatedly, the indication will change in the following sequence.

To record neither the Date nor the Clock Indication:	To record the Date and Clock Indications:	To record only the Date Indication:



1-4. HOW TO USE HANDGRIP (OPTIONAL)


To the Tripod Receptacle
Tighten the screw
To the Remote Control Socket
Handgrip
Be sure to pull the strap over your wrist.
This button also functions as Start/Stop Button.

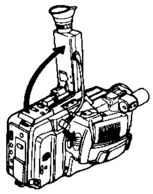
1-5. USING THE CHARACTER GENERATOR (OPTIONAL)

The use of the character Generator makes it possible to record titles, time, date and stopwatch while shooting some scene.

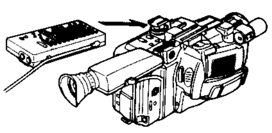
How to Attach the Character Generator
Use the Shoe Adaptor that is supplied with the Character Generator.

- Before attaching the Character Generator, turn the VHS-C Movie off with the Operation On/Off Switch.

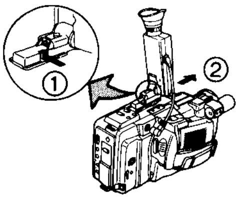
❶



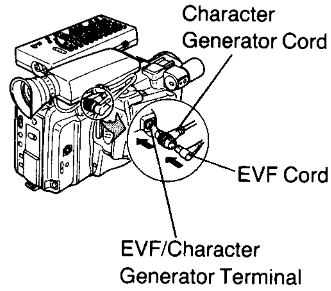
❹



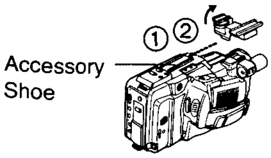
❷



❺


Character Generator Cord
EVF Cord
EVF/Character Generator Terminal

❸


①②
Accessory Shoe

❶ Disconnect the EVF Cord and turn the EVF upward.

❷ Keep pressing the part indicated by the arrow and remove the EVF by sliding it toward the rear.

❸ Attach the Shoe Adaptor and tighten the screw.

❹ Attach the EVF and the Character Generator to the Shoe Adaptor

❺ Insert the plug of the EVF Cord into the back of the plug of the Character Generator Cord and insert them together into the EVF/Character Generator Terminal.

- For the operation of the Character Generator, see the operating instructions of the Character Generator.

1-6. VHS-C MOVIE SYSTEM ACCESSORIES

Standard Accessories

○ **Supplied**
× **Not supplied**

	NV-MC30 EG, E, EW	**NV-MC30 EP, B**
AC Adaptor	○	○
Battery Pack	○	○
AV Output Cable	○	○
Shoulder Strap	○	○
System Carrying Case	×	○
VHS Cassette Adaptor	○	○
Battery for Clock Operation	○	○
Earphone	○	○
DC Input Cable	○	○
Battery for VHS-Cassette Adaptor Operation	○	○

Optional Accessories

Pause Remote Control Unit (VW-RM1)
Character Generator (VW-CG2)
Car Battery Cord (VW-ACC5)
Carrying Bag (VW-CB30E)
RF Adaptor (VW-RFC1E)
Handgrip (VW-GPC1E)
System Carrying Case* [VW-SHMC4]

*Please ask your local dealer about availability.

SECTION 2
ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY PROCEDURES

2-1-1. DISASSEMBLY FLOW CHART

This flow chart indicates disassembly steps for the cabinet parts and the P.C.boards in order to find the items necessary for servicing.
When reassembling perform the steps in the reverse order.

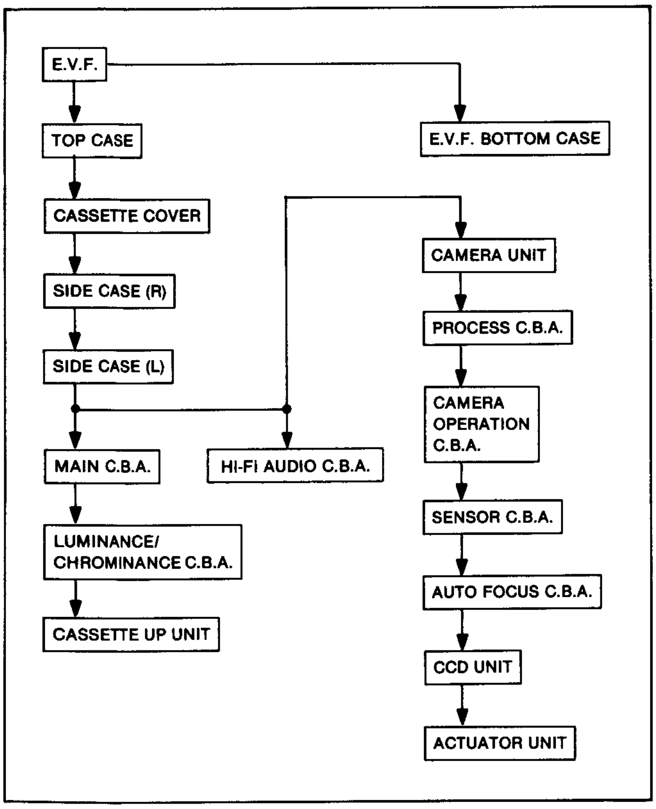

E.V.F.
TOP CASE
E.V.F. BOTTOM CASE
CASSETTE COVER
CAMERA UNIT
SIDE CASE (R)
PROCESS C.B.A.
SIDE CASE (L)
CAMERA OPERATION C.B.A.
MAIN C.B.A.
HI-FI AUDIO C.B.A.
SENSOR C.B.A.
LUMINANCE/ CHROMINANCE C.B.A.
AUTO FOCUS C.B.A.
CASSETTE UP UNIT
CCD UNIT
ACTUATOR UNIT

Fig.D1

Note:
(1) When removing the cabinet, work with care so as not to break the locking tabs.
(2) Place a cloth or some other soft material under the P.C.Boards or Unit to prevent damage.
(3) When re–installing, ensure that the connectors are connected and electrical components have not been damaged.
(4) Do not supply power to the Unit during disassembly.

2-1-2. VTR SECTION

1. Removal of E.V.F. Unit

(1) Disconnect the E.V.F. connector and turn the E.V.F. upward.
(2) Keep pressing the part indicated by the arrow and remove the E.V.F. by sliding it toward the rear.

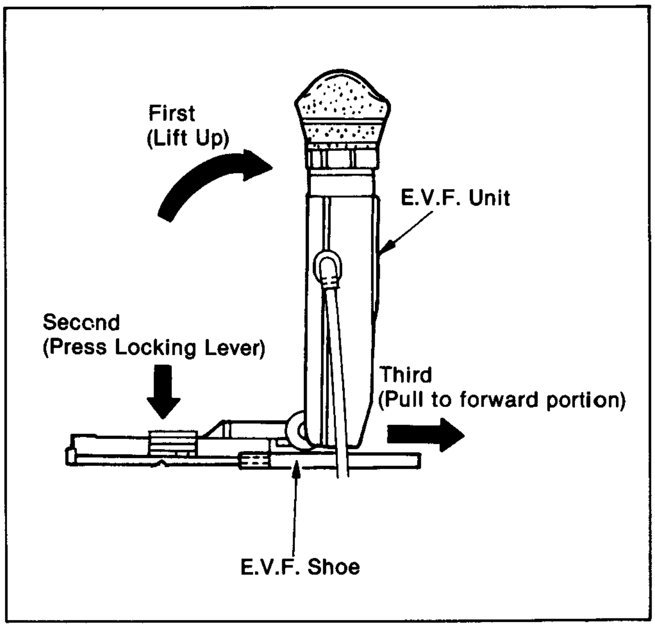

First
(Lift Up)
E.V.F. Unit
Second
(Press Locking Lever)
Third
(Pull to forward portion)
E.V.F. Shoe

Fig.D2

2. Removal of Top case

(1). Remove 5 screws (A).
(2). Lift the Top Case slightly and then disconnect the connector P2 and Flexible card P1 on the VTR SUB Operation C.B.A.

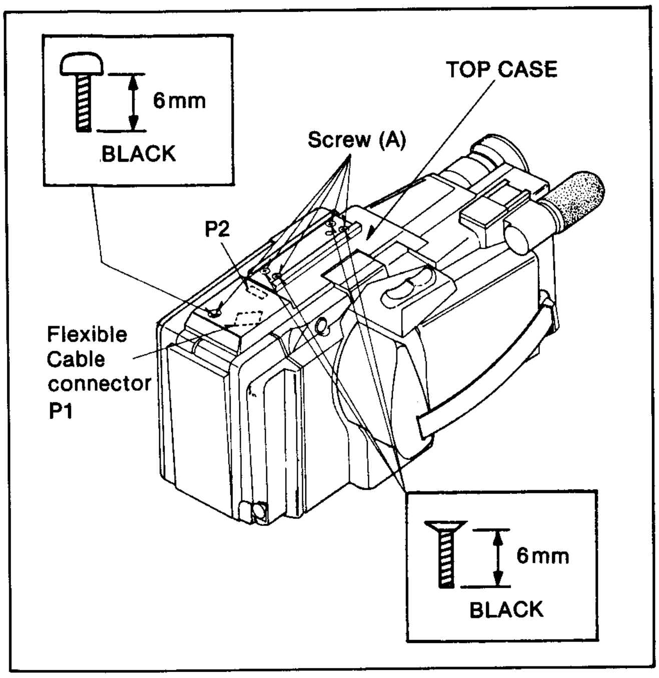

6mm
BLACK
TOP CASE
Screw (A)
P2
Flexible
Cable
connector
P1
6mm
BLACK

Fig.D3

3. Removal of cassette cover

(1). Remove 2 screws (B)
(2). Slide the cassette cover to remove.

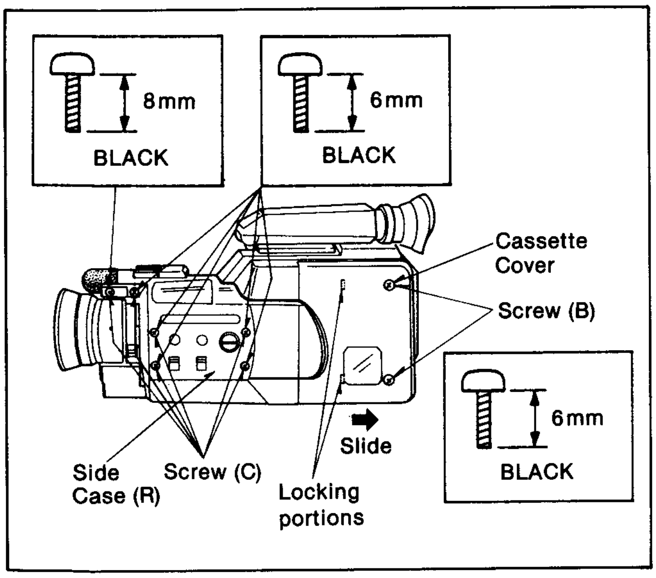

8mm
BLACK
6mm
BLACK
Cassette
Cover
Screw (B)
6mm
BLACK
Slide
Side
Case (R)
Screw (C)
Locking
portions

Fig.D4

4. Removal of side case (R)

(1) Remove 6 screws (C) as shown in Fig. D4 and 4 screws (D).
(2) Remove the side case (R).

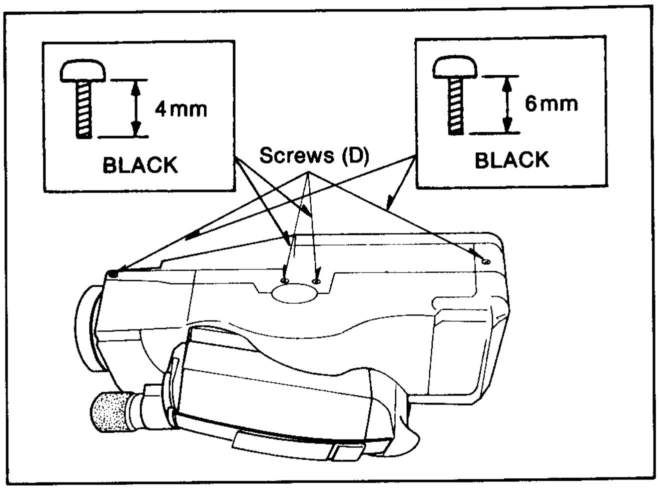

4mm
BLACK
Screws (D)
6mm
BLACK

Fig.D5

5. Removal of side case (L)

(1). Remove 4 screws (E) as shown in Fig. D6 and 3 screws (F) as shown in Fig. D8.

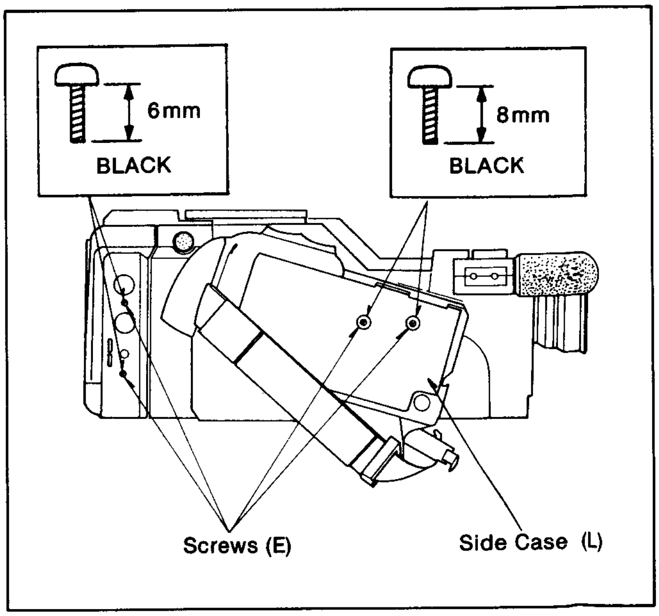

6mm
BLACK
8mm
BLACK
Screws (E)
Side Case (L)

Fig.D6

(2). Remove the side case (L) slightly.
(3). Disconnect the connector P307 on Process C.B.A. and disconnect the flexible card FP001 on Camera Operation C.B.A.

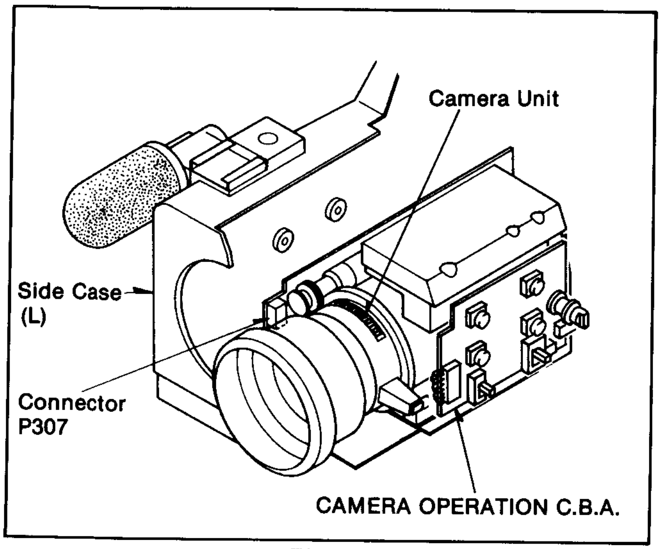

Camera Unit
Side Case (L)
Connector P307
CAMERA OPERATION C.B.A.

Fig.D7

(4). Disconnect the Flexible card P1002 on Main C.B.A., P4501(From MIC Unit) P4506(From SUB Operation) on Hi-Fi Audio C.B.A. and P4004 (From EAR Jack C.B.A.),P1001(From Battery Terminal).
(5). Remove the side case (R).

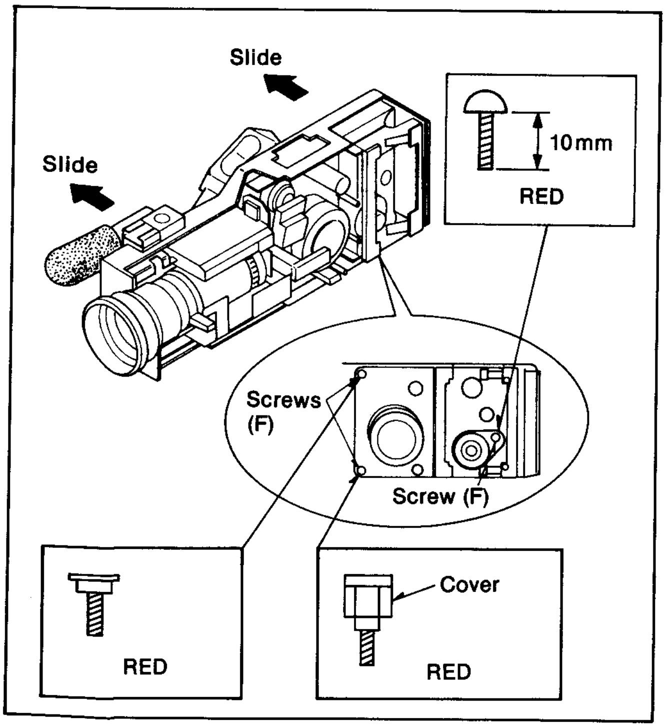

Slide
Slide
10mm
RED
Screws (F)
Screw (F)
RED
Cover
RED

Fig.D8

6. Removal of Main C.B.A.

(1). Remove screw (G) to remove the Main C.B.A.

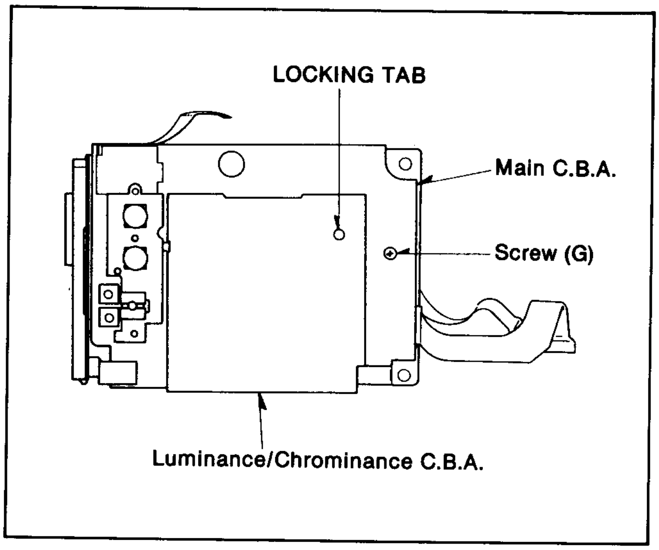

LOCKING TAB
Main C.B.A.
Screw (G)
Luminance/Chrominance C.B.A.

Fig.D9

7. Removal of Luminance/Chrominance C.B.A.

(1). Unlock locking tab to lift it up.
(2). Remove the luminance/chrominance C.B.A.

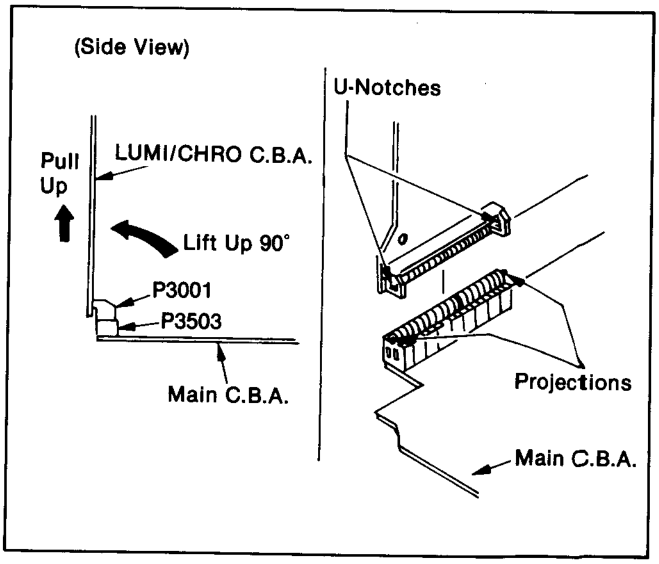

(Side View)
U-Notches
Pull Up
LUMI/CHRO C.B.A.
Lift Up 90°
P3001
P3503
Main C.B.A.
Projections
Main C.B.A.

Fig.D10

8. Removal of cassette up Unit

(1). Remove 2 screws (H)
(2). Slide the cassette Up Unit in direction of allow and release the pins on the moving levers of cassette up unit from the enlarged circular insertion hole at end of the cassette guide slot.

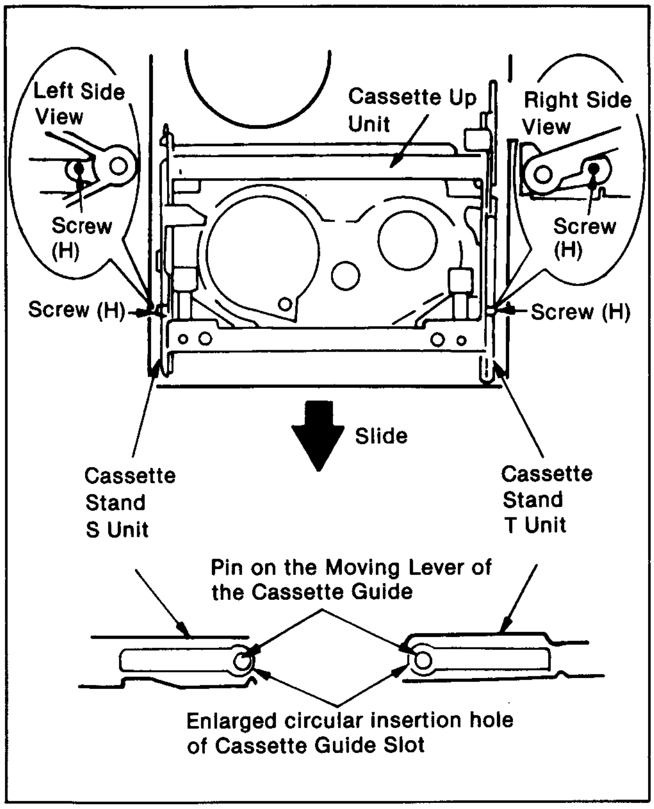

Left Side View
Screw (H)
Screw (H)
Cassette Up Unit
Right Side View
Screw (H)
Screw (H)
Slide
Cassette Stand S Unit
Cassette Stand T Unit
Pin on the Moving Lever of the Cassette Guide
Enlarged circular insertion hole of Cassette Guide Slot

Fig.D11

9. Removal of Hi-Fi AUDIO C.B.A.

(1). Disconnect P4502, P4503.

2-1-3. CAMERA SECTION

1. Removal of process C.B.A.

(1). Remove 2 screw (I) and disconnect the connectors P303, P308, B305, B301, P309 and flexible card FP302 on process C.B.A.
(2). Remove the process C.B.A.

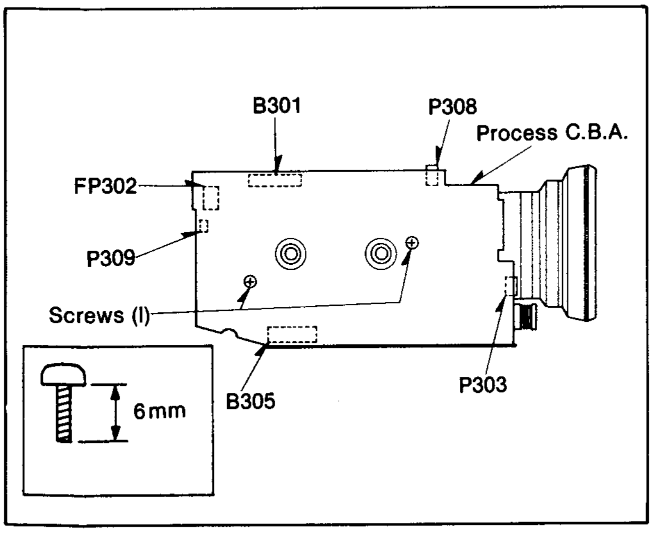

B301
P308
Process C.B.A.
FP302
P309
Screws (I)
6mm
B305
P303

Fig.D12

2. Removal of camera operation C.B.A.

(1). Remove screw (J) and disconnect the connectors P001, P002 on camera operation C.B.A.
(2). Remove the camera operation C.B.A.

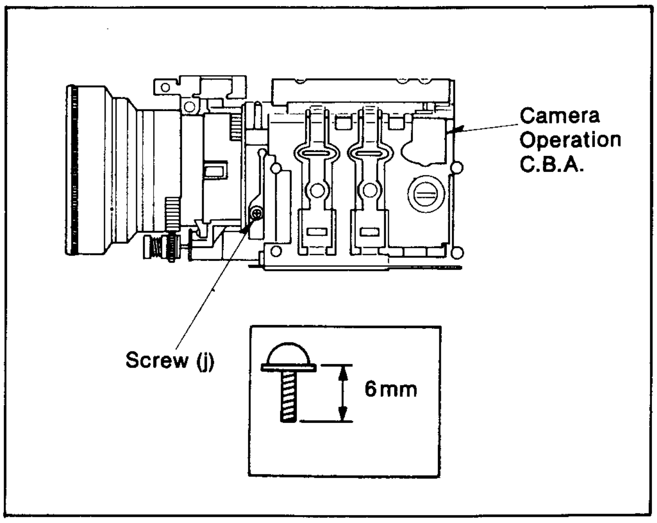

Camera Operation C.B.A.
Screw (J)
6mm

Fig.D13

3. Removal of sensor C.B.A.

(1). Remove 2 screws (K) to remove the shield box.

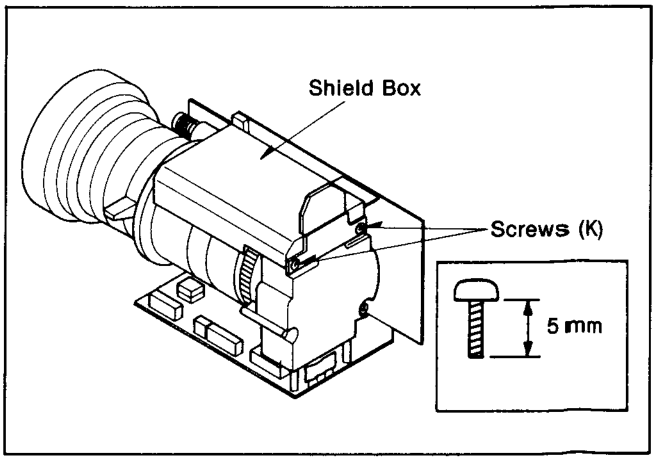

Shield Box
Screws (K)
5mm

Fig.D14

(2). Remove 2 screws (L) and disconnect the flexible card FP201 on sensor C.B.A.
(3). Remove the sensor C.B.A.

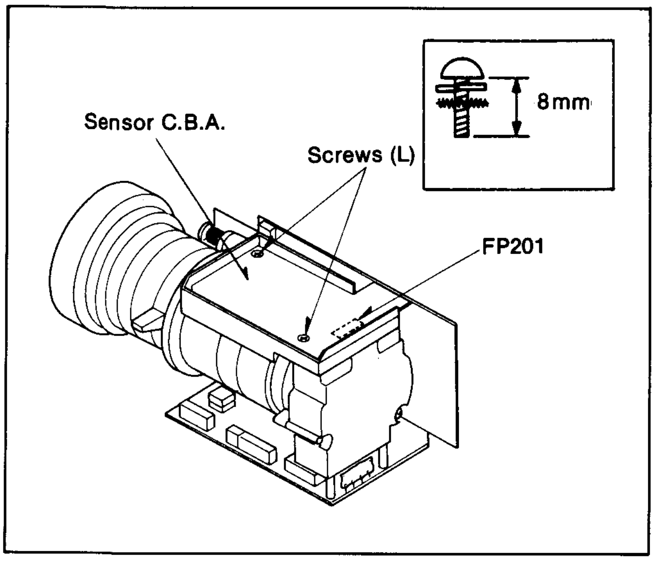

8mm
Sensor C.B.A.
Screws (L)
FP201

Fig.D15

4. Removal of Auto Focus C.B.A.

(1). Remove 3 screws (M) and disconnect the connectors P703, P704, P705, P701 on Auto Focus C.B.A.
(2). Remove Auto Focus C.B.A.

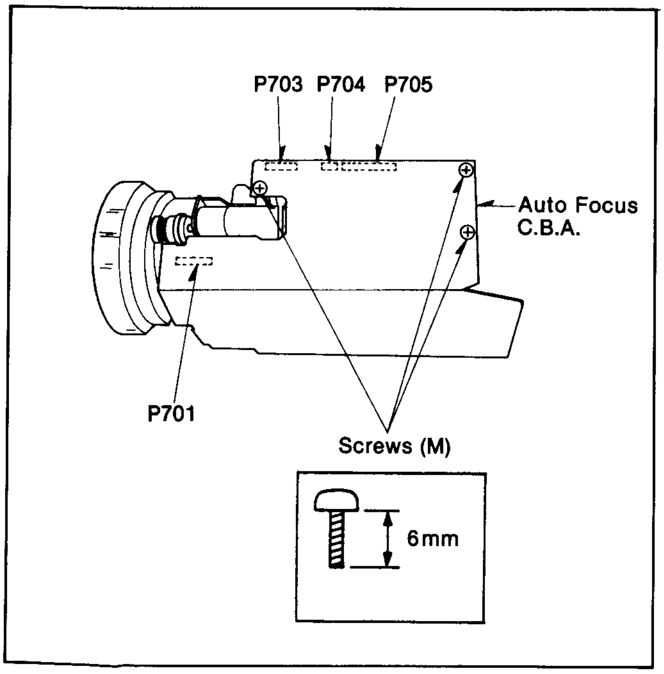

P703 P704 P705
Auto Focus C.B.A.
P701
Screws (M)
6mm

Fig.D16

5. Removal of CCD Unit

(1). Remove 2 screws (N)
(2). Remove 2 screws (O) and then take out the CCD Shield box.
(3). Remove 2 screws (P) and then take out the CCD Unit.

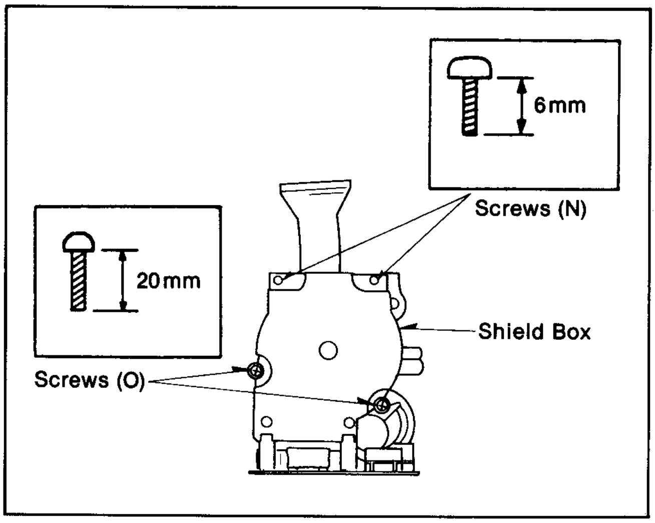

6mm
Screws (N)
20mm
Shield Box
Screws (O)

Fig.D17

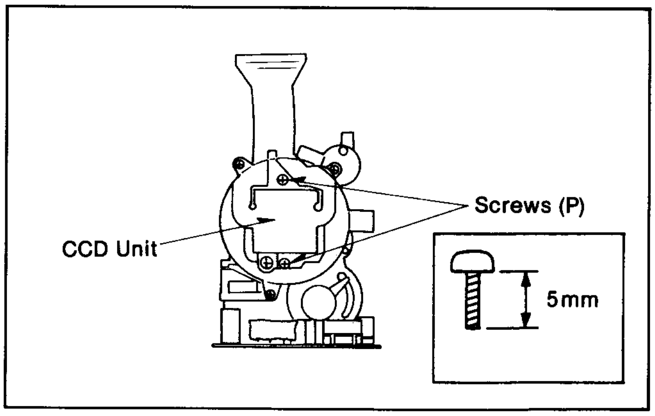

Screws (P)
CCD Unit
5mm

Fig.D18

6. Removal of Actuator Unit

(1). Remove 3 screws (Q) and remove actuator unit.

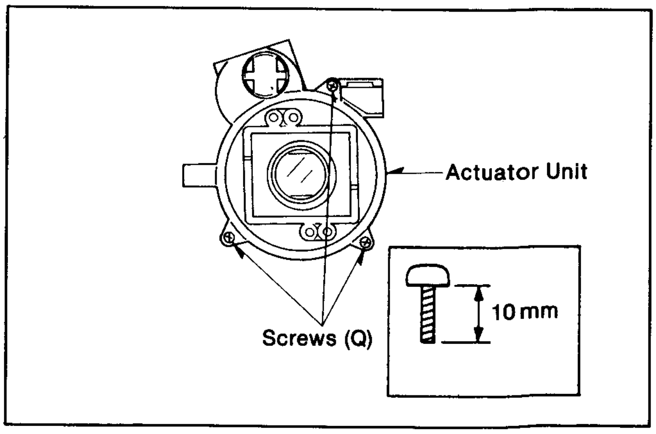

Actuator Unit
Screws (Q)
10mm

Fig.D19

2-1-4. E.V.F. SECTION

1. Removal of Bottom case

(1). Remove 2 screws (R) to remove the bottom case.

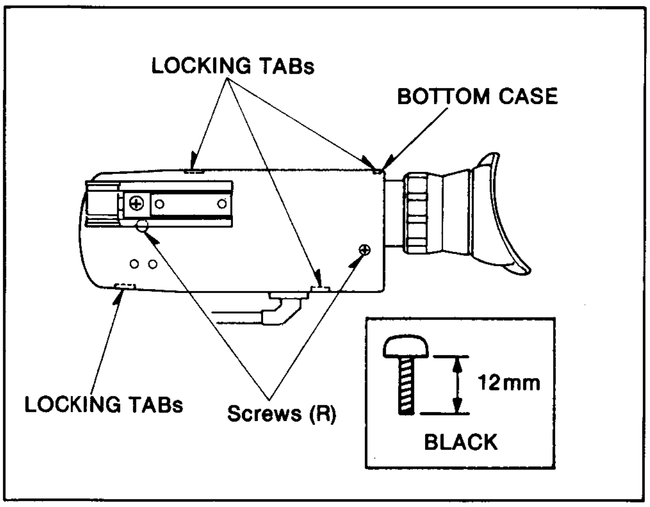

LOCKING TABs
BOTTOM CASE
LOCKING TABs
Screws (R)
12mm
BLACK

Fig.D20

2-2. PROCEDURE FOR CLEANING UPPER CYLINDER UNIT

(1) Position the Video Head to permit access for cleaning, and hold the Upper Cylinder to keep it from turning while cleaning.
(2) Gently rub the Video Head in the direction of tape travel with a Head Cleaning Stick (VFK27) moistened with Freon TF.
(3) Repeat for the other Video Heads.

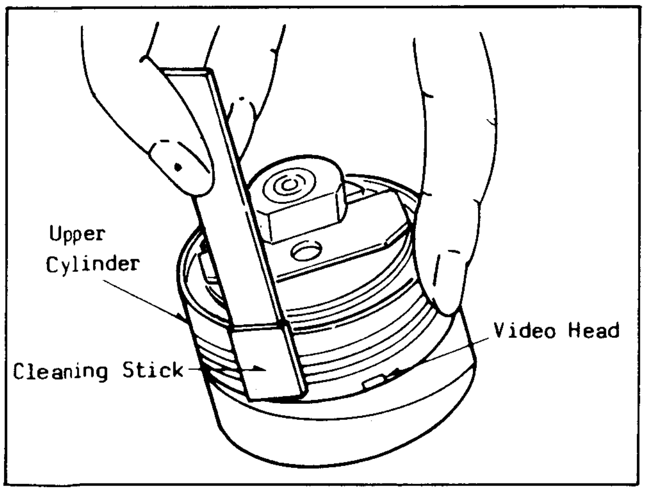

Upper Cylinder
Video Head
Cleaning Stick

Fig. U1

Note:
(1) Do not rub vertically.
(2) Do not apply any pressure to the head. If the contaminant is not easily removed, continued gentle wiping will usually remove it.

2-3. REPLACEMENT AND ADJUSTMENT PROCEDURES

2-3-1. REPLACEMENT OF FOCUS LENS UNIT

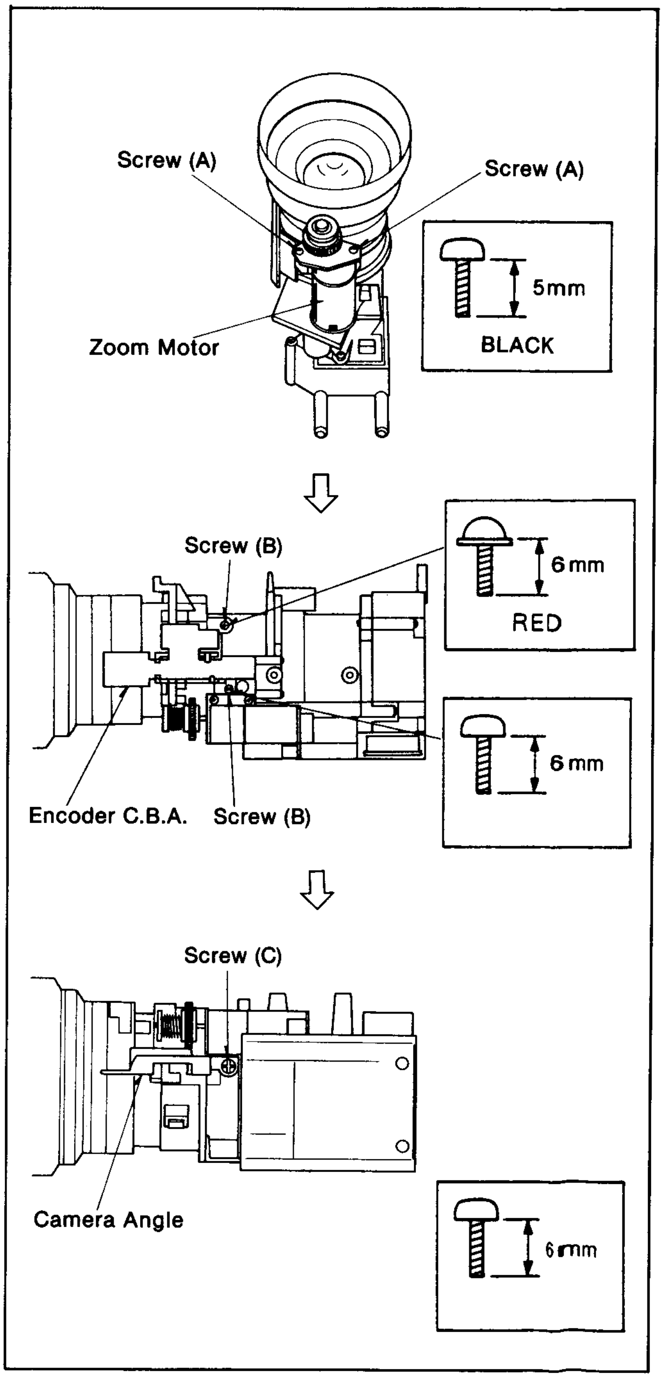

Screw (A)
Screw (A)
5mm
BLACK
Zoom Motor
Screw (B)
6mm
RED
6mm
Encoder C.B.A.
Screw (B)
Screw (C)
Camera Angle
6mm

Fig.M1

(1). Remove the camera unit from the VHS-C Movie.
(2). Remove the C.B.As (Process, Auto Focus, Sensor) from the camera unit.
(3). Unscrew the two screws (A) and remove the zoom motor.
(4). Unscrew the two screws (B) and remove the encoder C.B.A.
(5). Unscrew the screw (C) and remove the camera angle.

(6). Remove the focus fastener and tape as shown in Fig.M2.
(7). Remove the focus ring by turning the focus adjustment pitch to the counter clockwise.

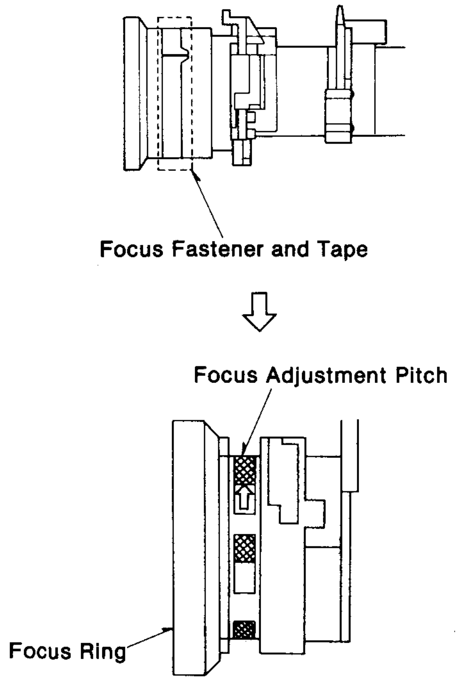

Focus Fastener and Tape
Focus Adjustment Pitch
Focus Ring

Fig.M2

(8). Unscrew the four screws (D) and remove the focus lens unit with iris unit as shown in Fig.M3.
(9). Remove the iris unit from focus lens unit and replace the focus lens unit.

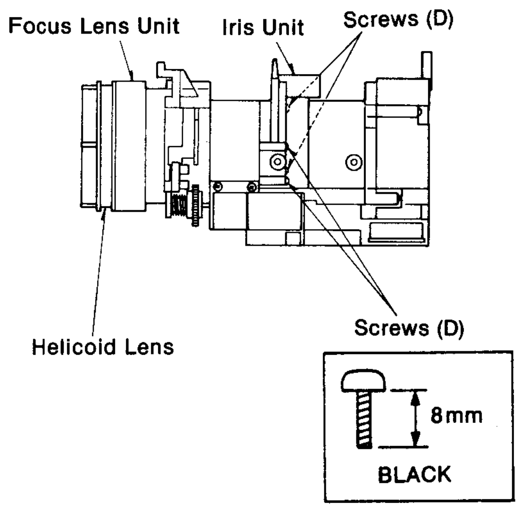

Focus Lens Unit
Iris Unit
Screws (D)
Helicoid Lens
Screws (D)
8mm
BLACK

Fig.M3

[Adjustment Procedures]

Note:
Do not remove the helicoid lens from focus lens unit because it has the relation of pairing between them.

If the helicoid lens is happened to be removed,the helicoid lens should be installed as following step.

a. Install the helicoid lens so that the projection with groove on helicoid lens comes to projection on lens unit as shown in Fig.M4.

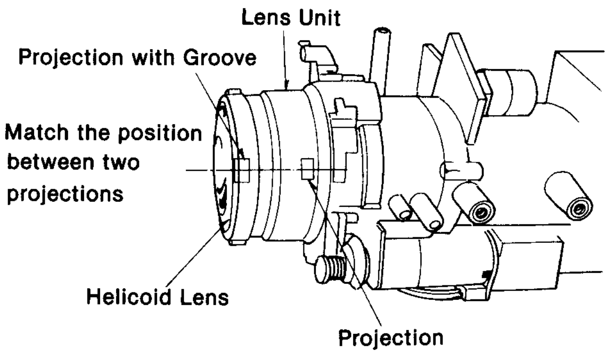

Lens Unit
Projection with Groove
Match the position between two projections
Helicoid Lens
Projection

Fig. M4

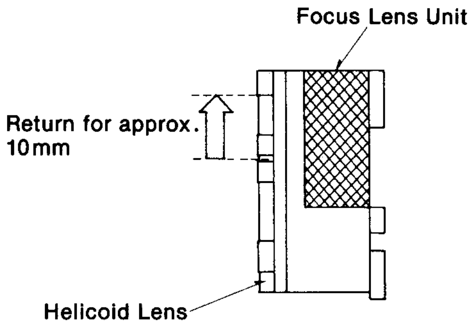

Focus Lens Unit
Return for approx. 10mm
Helicoid Lens

Fig. M5

(10). After replacing the focus lens unit, install the iris unit to focus lens unit.
(11). Install the focus lens unit with iris unit and then tighten the four screws (D) as shown in Fig. M3.
(12). Adjust the helicoid lens position as follows.

a. Turn the helicoid lens to fully clockwise and return it for approx. 10mm (so that next installation become easy) as shown in Fig.M5.

(13). Install the focus ring so that the infinity ( ) mark on focus ring is come to red-line on focus lens unit as shown in Fig.M6.

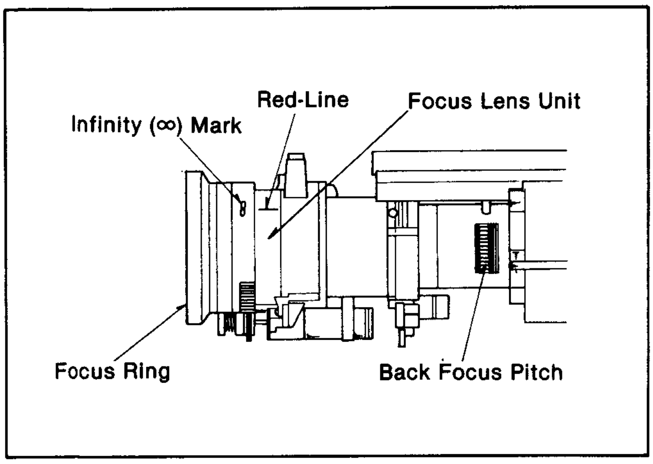


Fig.M5

(14). Install the C.B.As (Process, Auto Focus, Sensor, Encoder) and zoom motor in reverse assembly order.

(15). After installation of the focus ring ,adjust the position of focus adjustment pitch and back focus pitch as follows.

a. Aim the camera at the object in 3m distance from the surface of CCD unit (in 2.9m distance from focus ring).
b. Set the focus ring so that the 3m mark of distance indication on focus ring is come to red-line(Distance indication Line) on focus lens unit and keep the focus ring not to move during following adjustment.
c. Turn the zoom ring fully to "Tele" position (54mm position).
d. Adjust the focus adjustment pitch (refer to Fig. M2) to obtain the best focus and stick the tape(which was stuck on the unit before) on to the focus adjustment pitch(refer to Fig.M2).
e. Install the focus fastener as shown in Fig.M2.
f. Turn the zoom ring fully to "wide" position (9mm position).
g. Prepare the Hunting chart for object and aim the camera at the hunting chart 3m distance.
h. Zoom all the way in full tele position and focus the lens on the object.
i. Confirm that the focus ring indicates 3m.
j. Adjust the back focus pitch so that the sharpest focus is obtained.
k. Zoom all the way back and adjust the back focus pitch (refer to Fig.M6)so that the sharpest focus is obtained.
l. Repeat the procedure as follows, zoom in,focus,zoom out and adjust until the best focus is obtained over the entire zoom range.

2-3-2. REPLACEMENT OF ROTARY TRANSFORMER

Reinstallation of Rotary Transformer (R) Unit

(1) Reistall the Rotary Transformer (R) Unit carefully so that the white portion of Upper Cylinder Unit is properly aligned with white portion of Rotary Transformer (R).
(2) Tighten the 2 screws (C) and solder 8 Lead Pins (B).

Reinstallation of Upper Rotary Transformer (S) Unit

(1) Befor reinstalling a Upper Rotary Transformer (S) Unit, clean the surface of Rotary transformer (R) and Rotary Transformer (S) with a soft cloth.
(2) Place the Spacer (VMX1340) on Rotary Transformer (R). Reinstall the Upper Rotary Transformer (S) Unit so that insert the shaft (VMS3504) to center of Rotary transformer (S) surely through the center of Upper Rotary transformer (R).

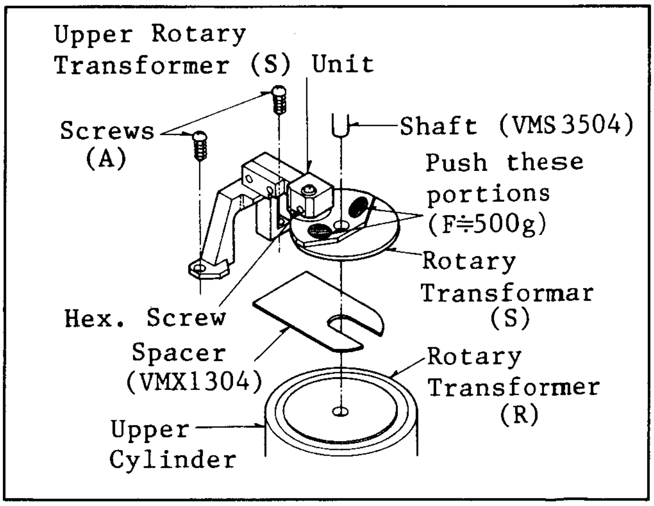


Fig.M7

(3) Tighth the 2 screws (A).
(4) Loosen the Hex. Screw (1.2mm).
(5) Push the Upper Rotary Transformer (S) C.B. (F=500g) and then remove the Shaft and tightn the Hex. Screw.
(6) Remove the spacer.

Simplifide adjustment of Upper Rotary Transformer (S) Unit

(1) Clean the surface of the Rotary Transformer (R) and (S) with a soft cloth before reinstall a Upper Rotary Transformer (S) Unit.
(2) Place a piece of paper on Rotary Transformer (R) which has the same thickness as an ordinary page of Service Manual (not cover page but the other thinner pages) cutting as follows. (The specification of this gap is between 70um ~ 100um.)
(3) Install the Rotary Transformer (S) unit so that the center portion comes to the center of Upper Cylinder Motor.
(4) Tighten the 2 Screws (A).
(5) Loosen the Hex. screw.

(6) Push the screened portions of the Rotary Transformer (S) (approx. 500g) and then tighten the Hex. screw with Hex wrench.
(7) Remove the paper which is used as spacer.
(8) Confirm that the Upper Cylinder can rotate smoothly.

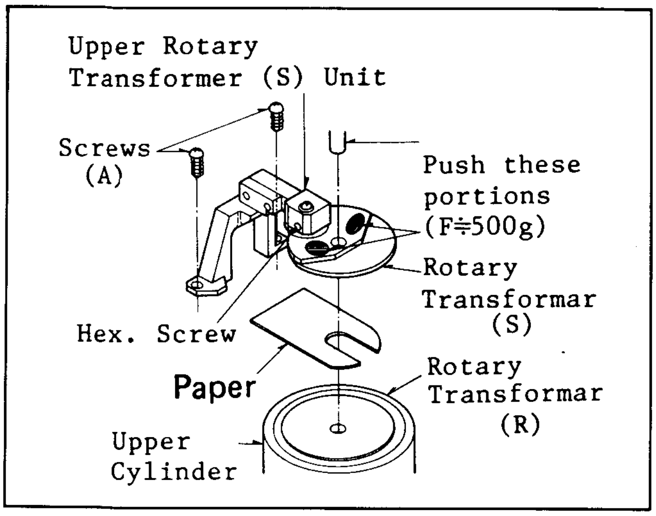

Upper Rotary Transformer (S) Unit
Screws (A)
Push these portions (F≑500g)
Rotary Transformar (S)
Hex. Screw
Paper
Rotary Transformar (R)
Upper Cylinder

Fig.M8

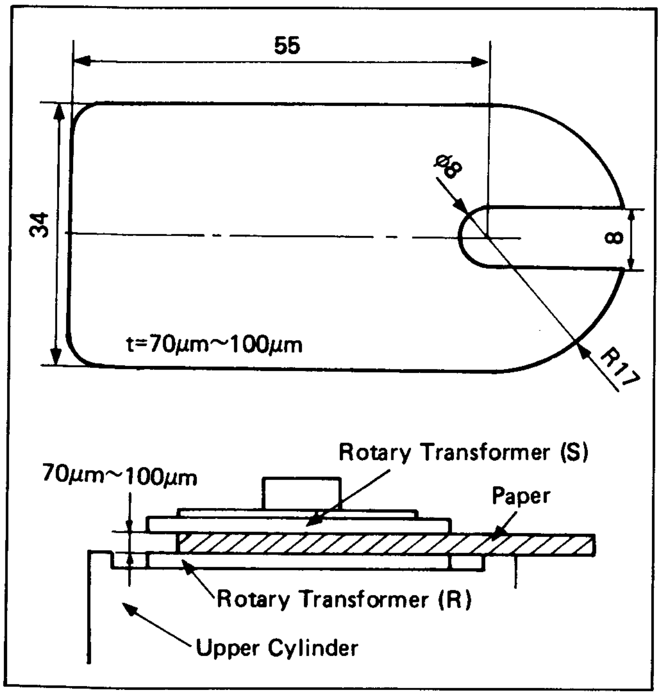

55
34
ø8
8
t=70μm~100μm
R17
70μm~100μm
Rotary Transformer (S)
Paper
Rotary Transformer (R)
Upper Cylinder

Fig.M9

Confirmation of replacement

(1) Confirm the rotarion of Upper Cylinder Unit. (Upper Cylinder Unit rotate smoothly.)
(2) Insert the Spacer to gap of Rotaly Trans. (It must be smoothly also gap must not be too wide.)
(3) Confirm the selfrecording and Playback picture on LP mode. (Play back picture must not noisy)
(4) If condition is no good, review the item No.6 Reinstllation of Upper Rotary Transformer (S) Unit.
(5) After confirmation, perform "TAPE INTERCHANGEABILITY ADJUSTMENT."

2-3-3. REPLACEMENT OF CAPSTAN MOTOR UNIT

(1) Ensure Unit is in the STOP mode. Remove the Capstan Belt.
(2) Unlock Flexible Cable P2603 on the Drive C.B.A.

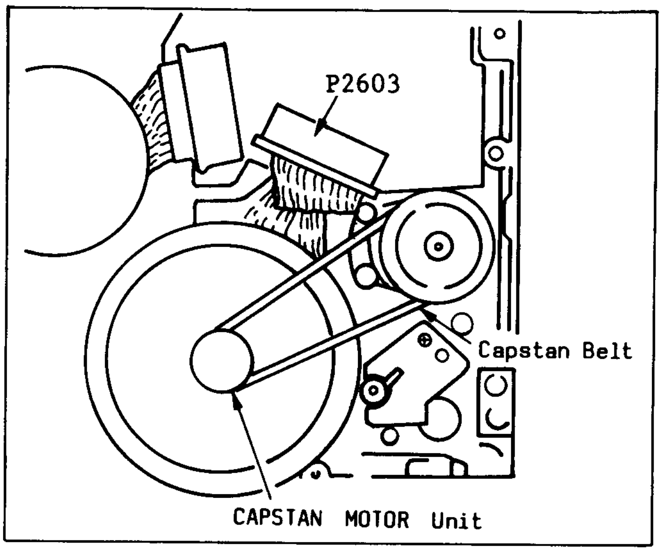

P2603
Capstan Belt
CAPSTAN MOTOR Unit

Fig.M10

(3) Remove the Cassette Up Holder. LP Head Amp, Head Amp Holder and Mode Select Switch Unit.
(4) Take out the Idler Gear while pushing on the Tape Guide Lever Unit until it clears the Idler Gear Teeth as shown in Fig. M11.

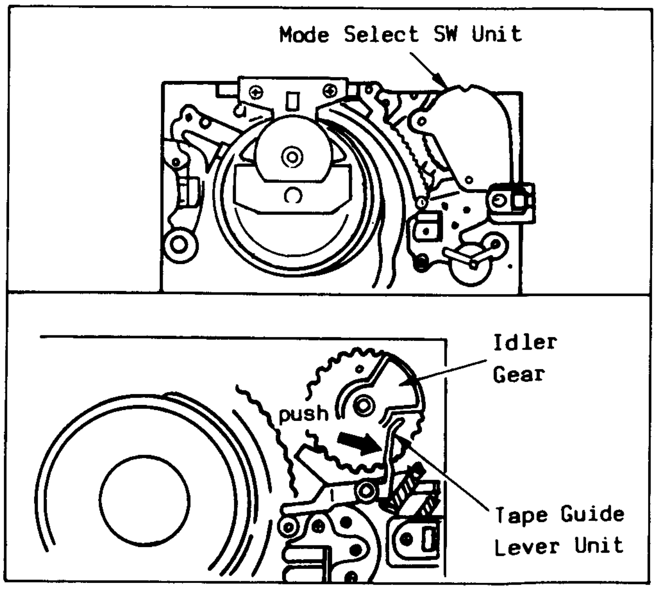

Mode Select SW Unit
Idler Gear
push
Tape Guide Lever Unit

Fig.M11

(5) Remove 2 Screws (B). Then remove Screw (C) while slightly pushing on the Sector Gear Unit to reveal Screw (C) as shown in Fig. M12. Then remove the A/C Head Base Unit.

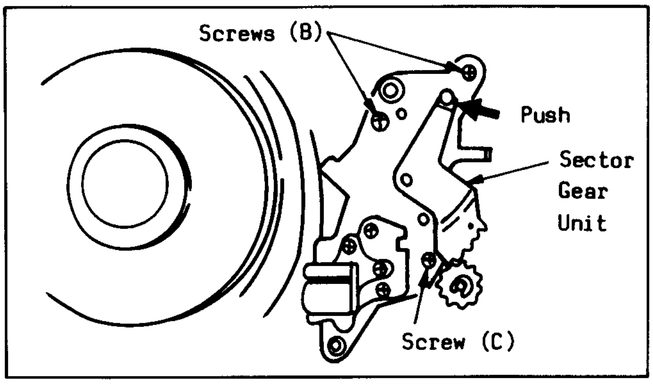

Screws (B)
Push
Sector Gear Unit
Screw (C)

Fig.M12

(6) Remove the Cut Washer and Motor Gear. Then place the Unit in play position completely by rotating Loading Idle Gear clockwise as shown in Fig. M13.

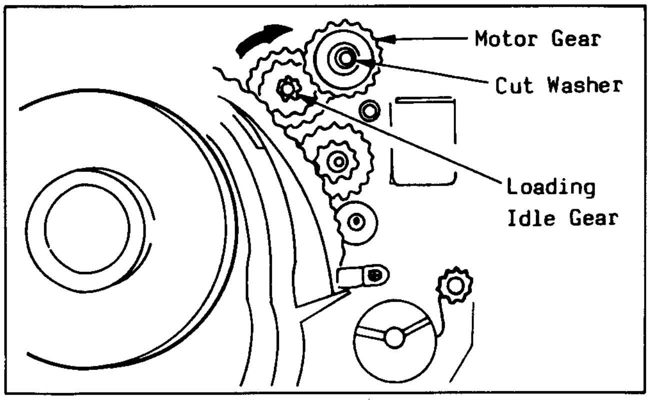

Motor Gear
Cut Washer
Loading Idle Gear

Fig.M13

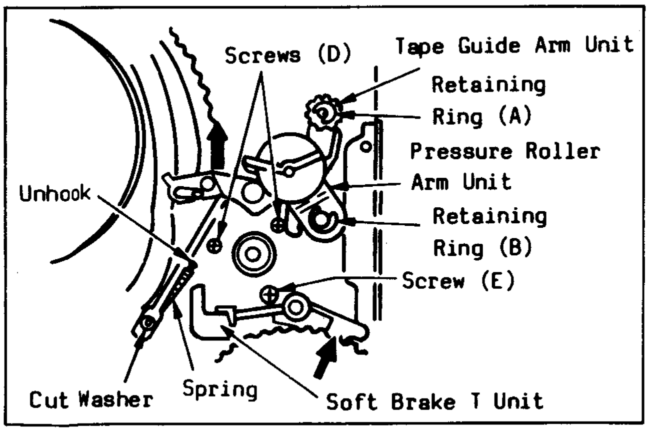

Screws (D)
Tape Guide Arm Unit
Retaining Ring (A)
Pressure Roller Arm Unit
Unhook
Retaining Ring (B)
Screw (E)
Cut Washer
Spring
Soft Brake T Unit

Fig.M14

(7) Remove Retaining Ring (A) and Tape Guide Arm Unit by pushing it in the direction shown by arrow and lifting it off its Post.
(8) Remove the Cut Washer and unhook the Spring.
(9) Remove Retaining Ring (B) and Pressure Roller Arm Unit.
(10) Refer to the Disassembly/Assembly and Adjustment Procedures of Mechanism. Use steps 3, 4 and 5 to remove the Takeup Reel Gear, Clutch Gear Unit and Soft Brake T Unit.
(11) Remove 2 Screws (D) and Screw (E) while pushing slightly on the Soft Brake T Unit.Then remove the Capstan Stator Unit from Bottom Side.
(12) Replace the new Capstan Motor Unit and then tighten 2 Screws (D) and Screw (E).

Adjustment of FG Head Gap

* Specification: .... 0.1~0.15mm
(1) Slightly loosen the 2 screws.
(2) Put the paper which is used for cover page of this volume into the gap between F.G.Head and Capstan rotor.
(3) Afer adjustment, tighten 2 screws.

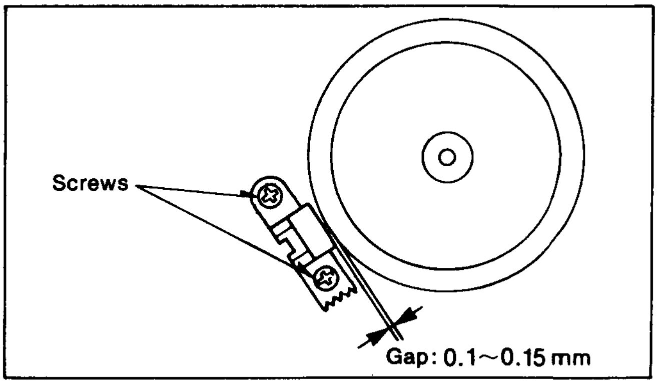

Screws
Gap: 0.1~0.15 mm

Fig. M15

Note:
Do not touch the surface of rotor and keep any magnetizable material away.

2-3-4. ADJUSTMENT OF TENSION POST POSITION

(1) Remove the Cassette Up Unit.
(2) Cover the Tape End Sensor and Cassette Up/Down Sensor with Black Tape.
(3) Push the Play button to complete loading operation sequence.
(4) As soon as loading is completed, disconnect the AC plug of AC Adaptor.
(5) Loosen Screw (F) a little bit and adjust the Tension Adjust Piece (in either direction) as indicated by the arrow so that the center of the Tension Post is 1mm to the left of the center of the S1 Post as shown in Fig. M16. Tighten Screw (F) to secure it.

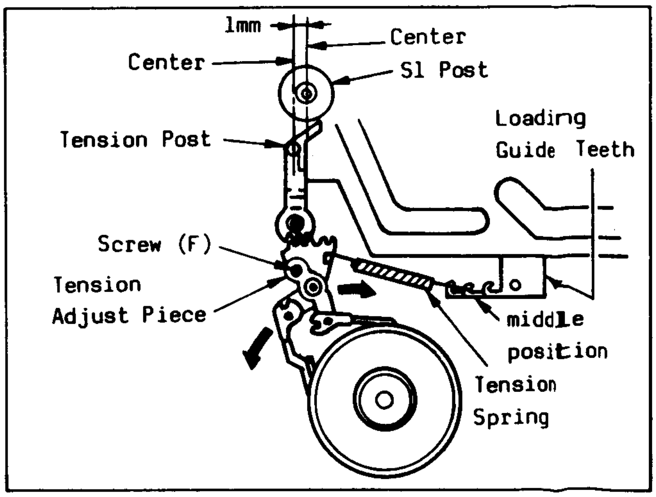

1mm
Center
Center
S1 Post
Loading Guide Teeth
Tension Post
Screw (F)
Tension Adjust Piece
middle position
Tension Spring

Fig. M16

Note:
After this adjustment, reposition Tension Spring on Loading Guide Teeth to middle position as a Back Tension Adjustment as shown in Fig. M16.

2-3-5. HEIGHT ADJUSTMENT OF TAPE GUIDE POST (PRELIMINARY ADJUSTMENT)

Height adjustment of S1 Post

* Specification: .... 14.72+–0.1mm

(1) For adjustment of S1 post height, turn 4mm Nut (A) slightly in either direction as necessary to the correct clearance between the upper edge of the lower tape guide on S1 Post and the lower portion of Cassette Stand S Unit.

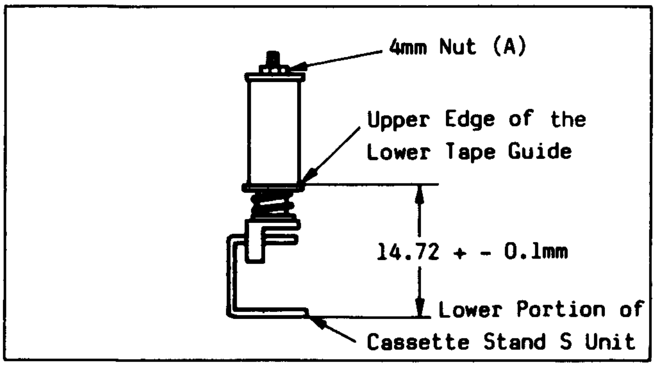

4mm Nut (A)
Upper Edge of the Lower Tape Guide
14.72 + - 0.1mm
Lower Portion of Cassette Stand S Unit

Fig. M17

Height adjustment of S2 and T1 Posts

* Specification:
S2 Post .... 0.56+–0.1mm
T1 Post .... 0.74+–0.1mm

(1) For adjustment of S2 and T1 post height, loosen the Black Lock Screw located on the lower portion of Posts (S2 & T1) using the Lock Screwdriver .
(2) Turn top of post with Hex. Wrench (1.5mm) slightly in either direction as necessary to the correct clearance as shown in Fig. M18.

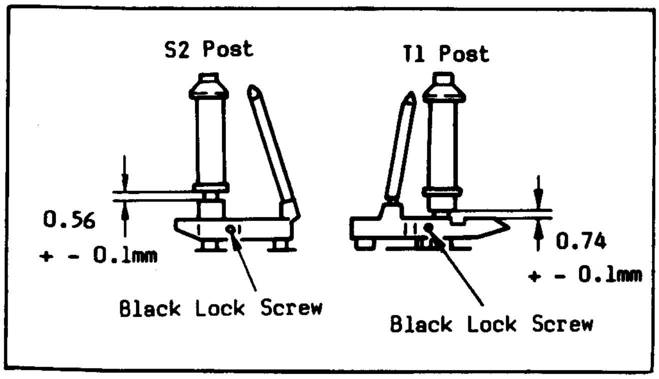

S2 Post
T1 Post
0.56
+ - 0.1mm
0.74
+ - 0.1mm
Black Lock Screw
Black Lock Screw

Fig. M18

2-3-6. TAPE INTERCHANGEABILITY ADJUSTMENT (FINAL ADJUSTMENT)

Note:
1) To perform these adjustment/confirmation procedures, make sure that the Tracking Control is set in the fixed (neutral) positionby pushing both of the Tracking Control Up/Down Switches, on the Main C.B.A., in at the same time.
2) Before these adjustment/confirmation procedures, remove the cassette protective Tape Cover from a Cassette Tape or the Alignment Tape (VFM8180H8PF).

* Equipment Required:
Dual Trace Oscilloscope
Alignment Tape .... (VFM8180H8PF)
Hex. Wrench (1.5mm)

1. Confirmation of Tape Travel

(1) Play back a cassette tape and confirm that the tape travels without curling at the upper and lower guides on Posts S2 and T1.

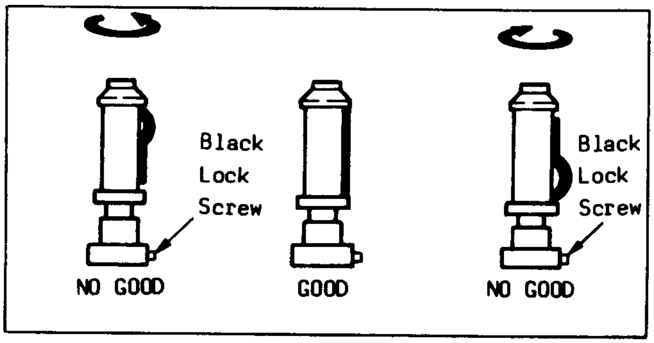

Black
Lock
Screw
Black
Lock
Screw
NO GOOD
GOOD
NO GOOD

Fig. M19

(2) If curling is apparent, adjust the height of posts by turning the top of Post with Hex. Wrench. (for S2 and T1)

Note:
Before turning S2 and T1, slightly loosen the Black Lock Screw using the Lock Screwdriver.

2. Confirmation of A/C Head

This confirmation is required when the A/C Head or Capstan Motor is replaced and for a preliminary height adjustment.
For final adjustment, perform items 3 and 4.

(1) Looking at the lower edge of the Control Head with the tape in motion, ensure that the lower edge of the tape runs 0.25mm above the lower edge of the Control Head. If it doesn't, turn Black Screw (A) slightly in either direction as necessary to correct it. Turn clockwise to lower the head and counterclockwise to raise it.

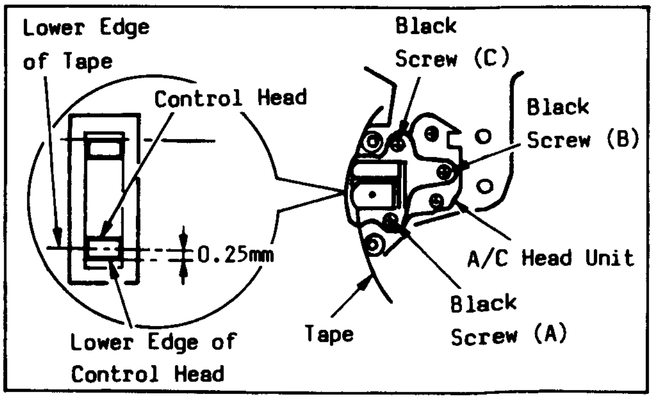

Lower Edge of Tape
Black Screw (C)
Control Head
Black Screw (B)
0.25mm
A/C Head Unit
Black Screw (A)
Lower Edge of Control Head
Tape

Fig. M20

3. Confirmation of Tilt of A/C Head

(1) Play back a cassette tape and confirm that the tape runs properly between lower and upper limits of T3 Post. Also confirm that the tape is running smoothly.

(2) If adjustment is required, turn Black Screw (B), in Fig. M20, counterclockwise until curling is apparent at lower edge of T3 Post. Then turn Black Screw (B) clockwise until the curling smoothes out.

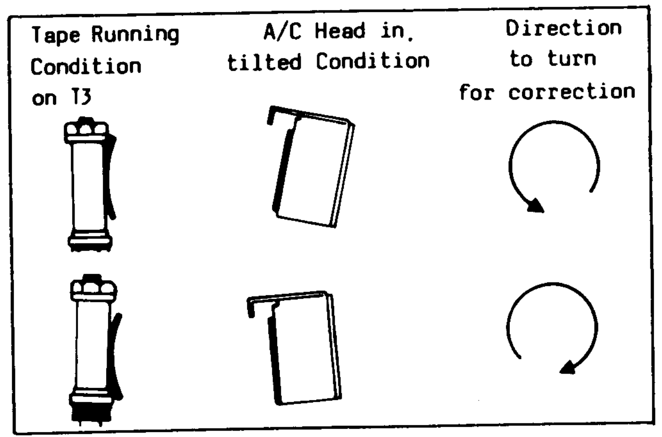

Tape Running Condition on T3
A/C Head in. tilted Condition
Direction to turn for correction

Fig. M21

4. Height and Azimuth Adjustment of A/C Head

(1) Connect the oscilloscope to TP4001 on the Main C.B.A.

(2) Play back the Monoscope portion (6KHz, Mono) of the Alignment Tape.

(3) Adjust Black Screw (C) on the A/C Head Base in Fig. M20 so that the output level is at a maximum.

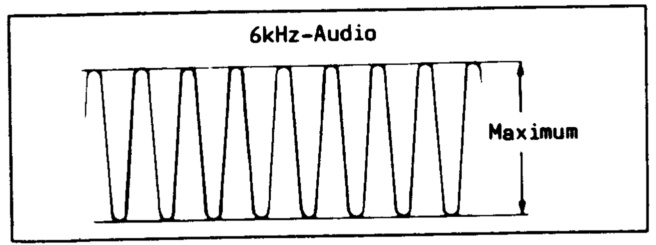

6kHz-Audio
Maximum

Fig. M22

(4) Readjust Black Screw (A) shown in Fig. M20 for maximum output.

(5) Disconnect the oscilloscope.

5. Horizontal Position Adjustment of A/C Head

(1) Set the tracking control to the fixed (neutral) position by pushing both of the tracking control Up/Down Switches, on the Main C.B.A., in at the same time. Connect the oscilloscope to TP3501 on the Main C.B.A. Use TP2001 as a trigger.

(2) Play back the monoscope portion of the Alignment Tape and confirm that RF envelope appears, as in Fig. M24.

(3) If adjustment is required, loosen 2 Black Screws (D) and then slowly move the A/C Haed Base back and forth using a screwdriver so that the envelope is at a maximum.

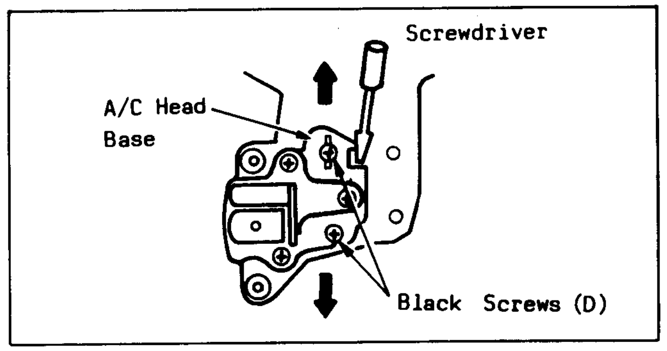

Screwdriver
A/C Head Base
Black Screws (D)

Fig. M23

(4) Confirmation of the correct adjustment can be made by alternately pushing the Tracking Control Up/Down Switches, on the Main C.B.A. to check the symmetry of the envelope.

(5) Trghten 2 Black Screws (D).

(6) Reconfirm the symmetry of the envelope. If it has changed, repeat steps (3) ~ (5).

6. Confirmation/Adjustment of Envelope Output

(1) Set the tracking control to the fixed (neutral) position by pushing both of the tracking control Up/Down Switches, on the Main C.B.A., in at the same time. Connect the oscilloscope to TP3501 on the Main C.B.A. Use TP2001 as a trigger.

(2) Playback the Monoscope portion of the Alignment Tape and adjust the height of posts S2 and T1 watching the scope display so that the envelope becomes as flat as possible. (V1/V-max >= 0.7, V2/V-max >= 0.8) If adjustment is required, turn top of post with Hex. Wrench (1.5mm). For adjustment of S2 and T1, refer to Item 1 and it's Note.

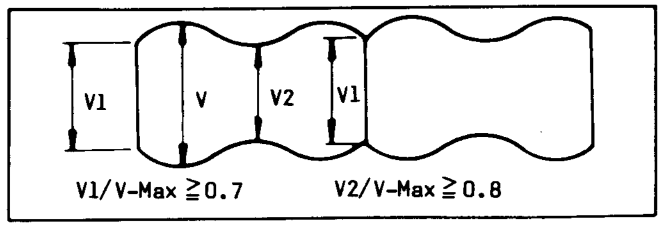

V1
V
V2
V1
V1/V-Max ≧ 0.7
V2/V-Max ≧ 0.8

Fig. M24

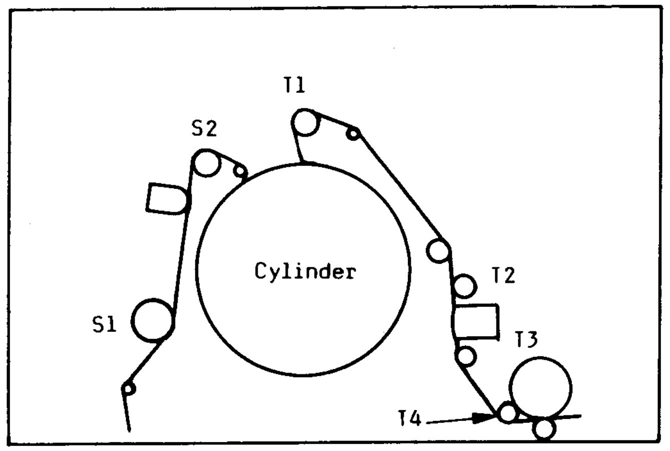

T1
S2
Cylinder
T2
S1
T3
T4

Fig. M25-1

(3) When the scope display is as shown in Fig. M25-2, adjust the height of S2 so that the waveform looks like Fig. M25-4.

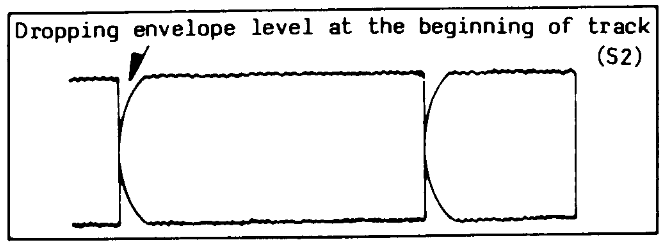

Dropping envelope level at the beginning of track (S2)

Fig. M25-2

(4) When the scope display is as shown in Fig. M25-3, adjust the height of T1 so that the waveform looks like Fig. M25-4.

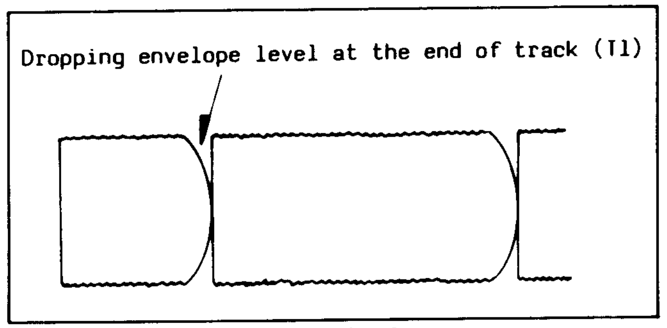

Dropping envelope level at the end of track (T1)

Fig. M25-3

(5) The scope display should appear as shown in Fig. M25-4 when S2 and T1 Posts are adjusted properly.

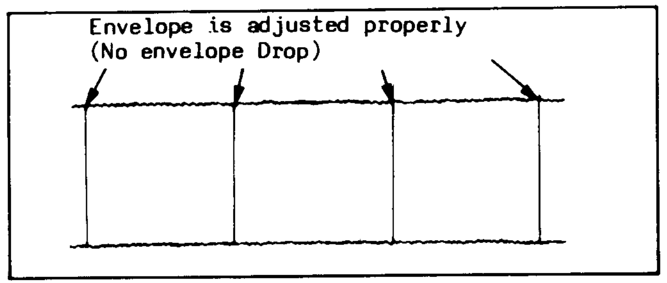

Envelope is adjusted properly
(No envelope Drop)

Fig. M25-4

Note:

1) Upon completion of adjustment of S2 and T1, tighten the Black Lock Screw on S2 and T1 using Lock Screwdriver. Then confirm the Horizontal Position of A/C Head by pushing the Tracking Control Up or Down switches on the Main C.B.A. alternately to check the symmetry of the envelope. And if required, perform "Horizontal Position Adjustment of A/C Head".

2) After these adjustment/confirmation procedures, replace the cassette protective Tape Cover.

2-3-7. ASSEMBLY AND ADJUSTMENT PROCEDURE OF MECHANISM

This procedure starts with the condition that the Cabinet parts and Cassette Up Unit have been removed.
When re-assembling, perform the step (s) in the reverse order.

STEP /LOC No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE * UNHOOK/UNLOCK/RELEASE	ADJUSTMENT # CONDITION ✱ REMARKS
①	1	RT (S) UNIT D.D. CYL. UNIT	T/B	M27, 28	3 (S-0) * Connectors	* Remove the Earth Plate before Step ①
②	3	TAKEUP REEL GEAR	T	M26, 28	(C-1), (W-1) <Note 1>	(+)
③	3	CLUTCH GEAR UNIT	T	M26, 28	(C-2), (W-2) <Note 1>	(+)
④	4	SOFT BRAKE T UNIT	T	M26, 28	(C-3), * (P-1) <Note 1>	(+)
⑤	6	HEAD AMP ANGLE	T	M29	2 (S-2), (S-3) * Connector	* Remove the LP Head amp Unit before Step ⑤.
⑥	6	MODE SELECT SWITCH UNIT	T	M26, 29	(S-3) * Connector	Align the Punch Mark with the Notch. # STOP MODE
⑦	6	TAPE GUIDE LEVER UNIT	T	M26, 29	(C-4), * (P-2) <Note 1>	See, Hooking Position.
⑧	7	IDLER GEAR	T	M26, 30	....	(+) Align the Notch with the Shaft of Loading Idle Gear. # STOP MODE
⑨	8	SECTOR GEAR UNIT	T	M26, 30	....	(+) Align the Hole with the Notch. # STOP MODE
⑩	9	A/C HEAD BASE UNIT	T	M26, 30	3 (S-4)	<Note 2>
⑪	10	MOTOR GEAR	T	M26, 31	(C-5) <Note 1>	(+) # STOP MODE (Fig. M31)
⑫	11, 10	LOADING MOTOR UNIT	T	M31	2 (S-5)	<Note 2>
⑬	10	TAPE GUIDE LEVER UNIT	T	M26, 31	(R-1), * (P-3)	See, Hooking Position.
⑭	14	TENSION ARM UNIT	T	M26, 32	(C-6), (W-3) <Note 1>	(+) See, Adjustment of Tension Post Position.Align the Punch Mark with the Notch. #Loading
⑮	15	SUPPLY REEL TABLE UNIT	T	M26, 32	(C-7), (W-4) <Note 1>	(+)
⑯	15	TENSION BAND ARM UNIT	T	M26, 32	(C-8), * (P-4) <Note 1>	(+)
⑰	16, 14	CASSETTE STAND S ASS'Y	T	M26, 33	2 (S-6), * Connector	(+) <Note 2>

STEP /LOC No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE *UNHOOK/UNLOCK/RELEASE	ADJUSTMENT #CONDITION
⑱	18	SHIELD COVER	B	M27	(S-7)	
⑲	18,11, 10,2	LOADING GUIDE ASS'Y	T	M26,34	6(S-8), *(L-1), *Connector	(+) <Note 2> <Note 3> # Loading
⑳	19	TAKEUP SHAFT HOLDER ASS'Y	T	M26	(C-9)	(+) <Note 1>
㉑	19	SUPPLY SHAFT HOLDER ASS'Y	T	M26	--------------	(+)
㉒	19	V STOPPER BASE ASS'Y	T	M26	2(S-9)	
㉓	19,13	PRESSURE ROLLER ARM UNIT	T	M26, M35	(R-2),(C-10), *(P-5), <Note 1>	(+) See, Hooking Condition.
㉔	23,5	CAPSTAN MOTOR UNIT	T	M26,27, M35	*Capstan Belt, 3(S-10), *Connector	<Note 2> See, Replacement of Capstan Motor Unit.
㉕	4	CASSETTE STAND-T	T	M26, M35	2(S-11)	(+) <Note 2>
㉖	19	RING GUIDE 1	T	M36	(S-12)	See, setting condition.
㉗	19	RING GUIDE 3	T	M36	(S-13)	See, setting condition.
㉘	27,26, 21,20	LOADING RING S UNIT	T	M26, M36	---------------	(+) Align the Hole with punch Mark.
㉙	28	LOADING DRIVE GEAR-T	T	M36	(C-11) <Note 1>	(+)
㉚	28	RING GUIDE GEAR-S (2 USED)	T	M36	--------------	-------------- White Color Gear
㉛	31	RING LIMITER	T	M26,37	(S-14)	
㉜	28	LOADING RING T UNIT	T	M36, M37	---------------	See, setting Condition. Align the Punch Mark with the Notch.
㉝	31	LOADING IDLE GEAR	T	M26,37	---------------	(+) Align the Punch Mark with the Notch.
㉞	32,28, 19	RING GUIDE GEAR-T (2 USED)	T	M37	---------------	(+) Black Color Gear # STOP MODE
㉟	10	LOADING DRIVE GEAR-S	T	M36, M37	(C-12) <Note 1>	(+)
(36)	33,32, 30,28	RING GUIDE-2	T	M36, M37	(S-15)	
(37)	32,28,22, 19,17	LOADING GUIDE-S UNIT	T	M38	3(S-16)	<Note 2>

List of Abbreviations:
T = Top, B = Bottom,
(R-1) = Retaining Ring (R-1); (P-1) = Spring (P-1); (S-1) = Screw (S-1);
(W-1) = Washer (W-1); 2(S-2) = 2 Screws (S-2); (C-1) = Cut Washer (C-1);
(L-1) = Locking Tab (L-1)
(+) = Refer to Exploded Views for Lubrication information

TOP VIEW

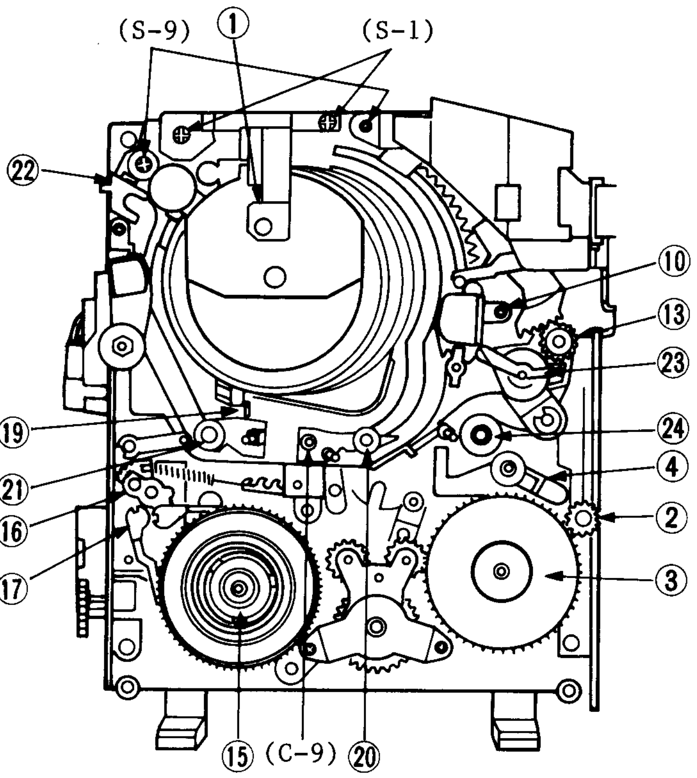

(S-9)
①
(S-1)
㉒
⑩
⑬
㉓
⑲
㉔
④
㉑
②
⑯
③
⑰
⑮
(C-9)
⑳

Fig. M26

BOTTOM VIEW

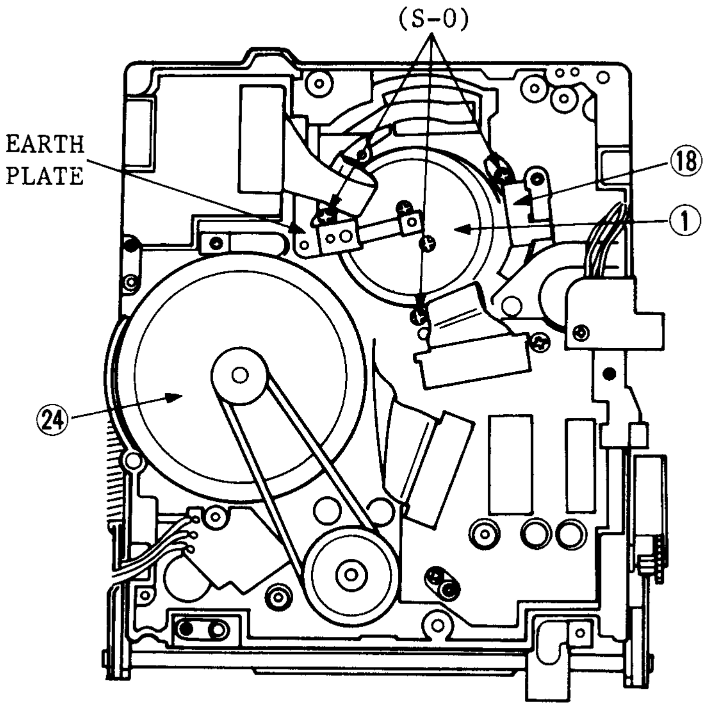

(S-0)
EARTH PLATE
⑱
①
㉔

Fig. M27

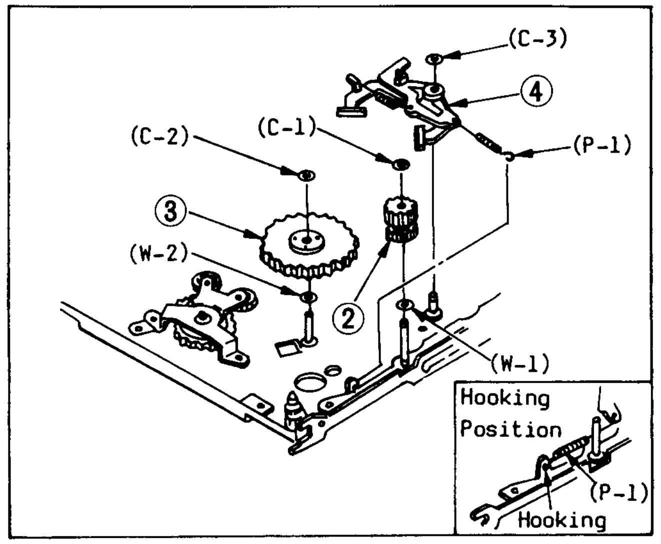

(C-3)
④
(C-2)
(C-1)
(P-1)
③
(W-2)
②
(W-1)
Hooking Position
(P-1)
Hooking

Fig. M28

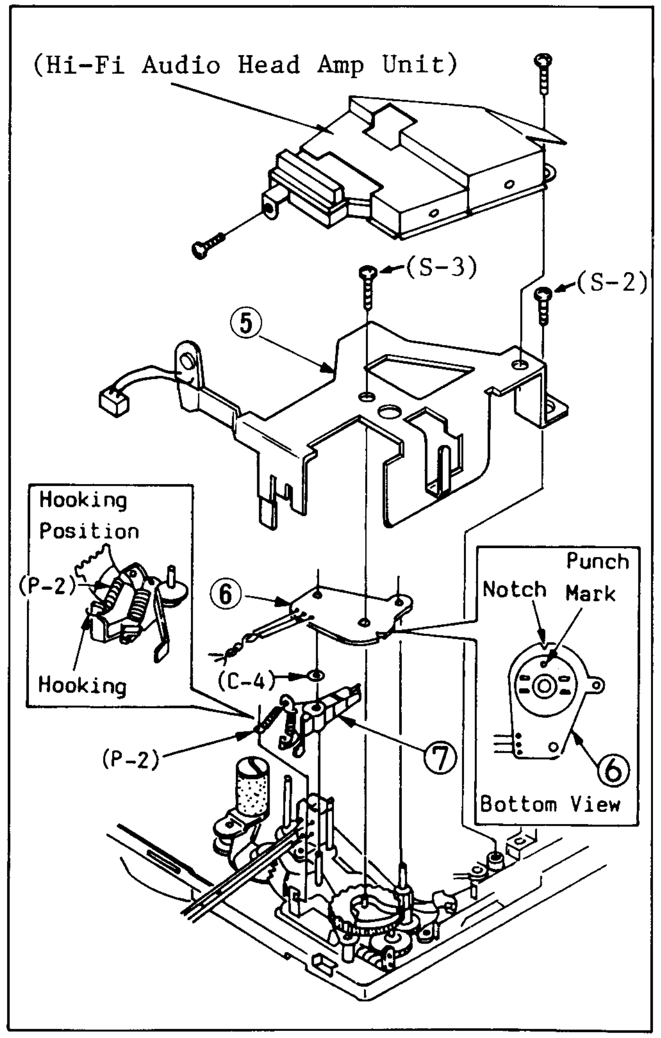

(Hi-Fi Audio Head Amp Unit)
(S-3)
(S-2)
⑤
Hooking Position
(P-2)
Hooking
⑥
(C-4)
(P-2)
⑦
Notch
Punch Mark
⑥
Bottom View

Fig. M29

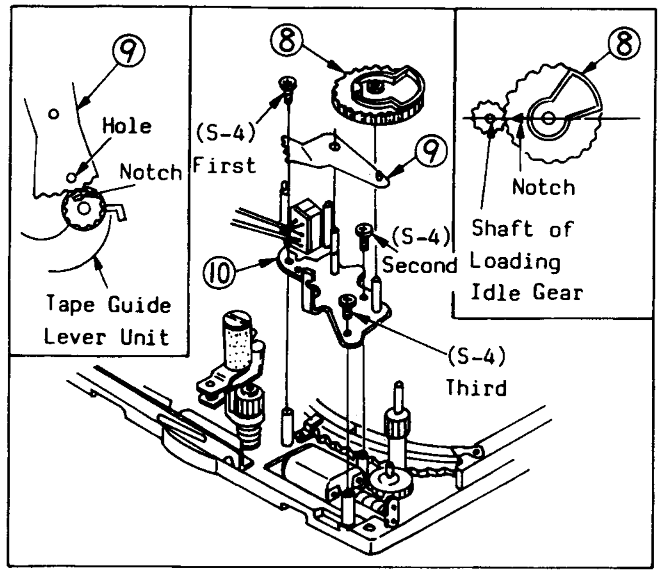
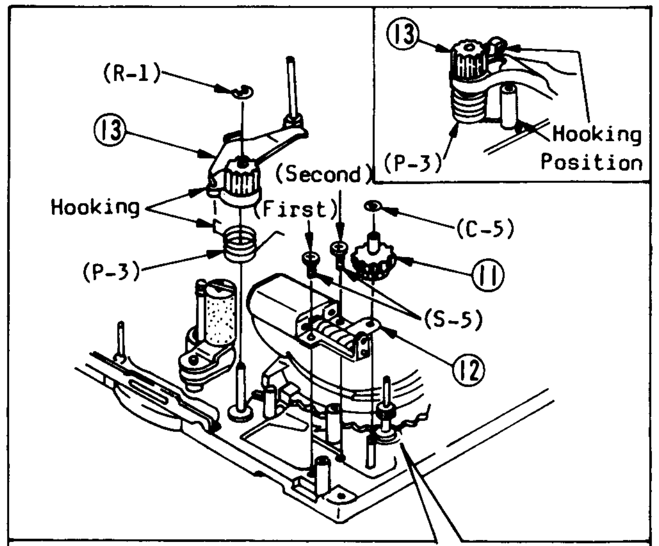

⑨
Hole
Notch
Tape Guide Lever Unit
⑧
(S-4) First
⑨
(S-4) Second
⑩
(S-4) Third
⑧
Notch
Shaft of Loading Idle Gear

Fig. M30


(R-1)
⑬
Hooking
(P-3)
(Second)
(First)
(C-5)
⑪
(S-5)
⑫
⑬
(P-3)
Hooking Position

Align the hole of Gear with the hole in chassis.

▨|▨ Loading Drive Gear S

▨|▨ Chassis

Fig. M31

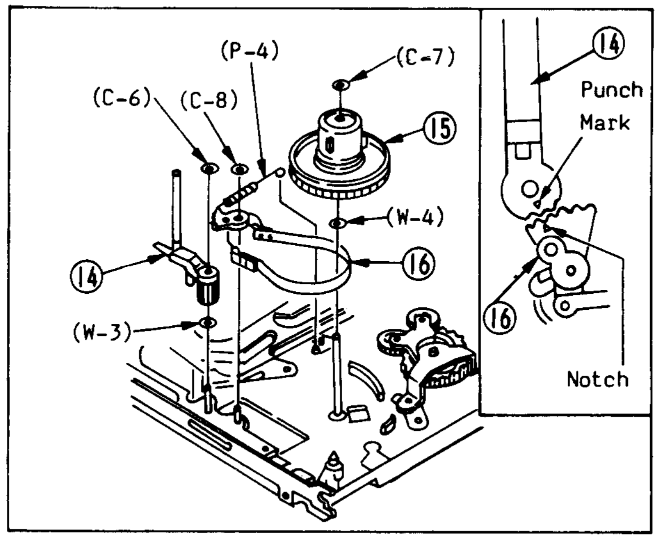

(P-4)
(C-7)
(C-6)
(C-8)
⑮
(W-4)
⑯
⑭
(W-3)
⑭
Punch Mark
⑯
Notch

Fig. M32

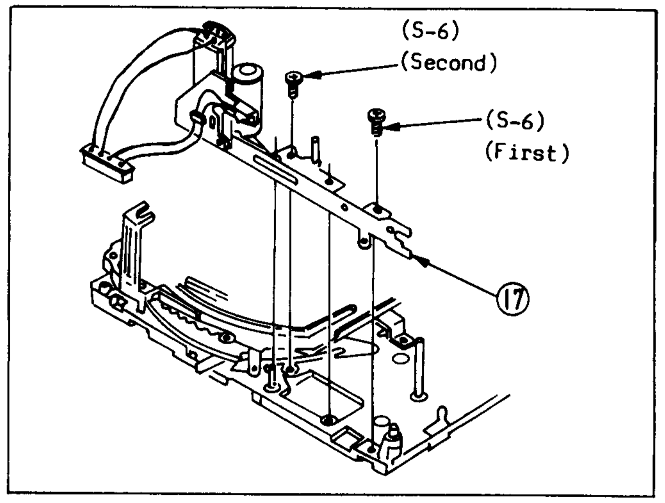

(S-6) (Second)
(S-6) (First)
⑰

Fig. M33

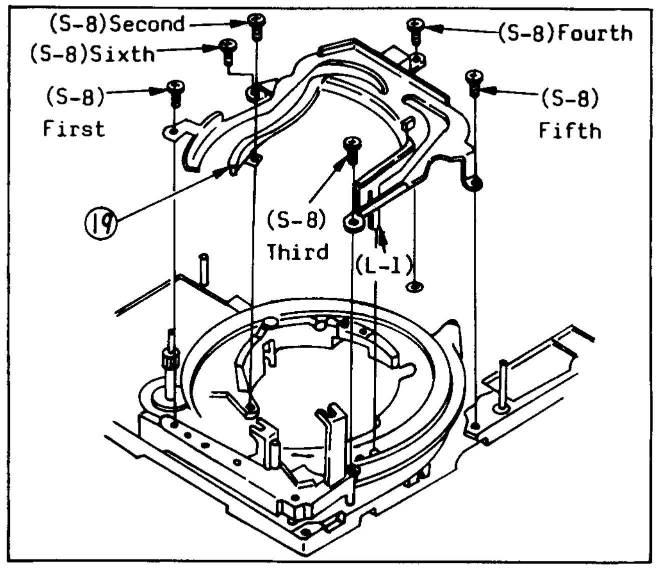

(S-8)Second
(S-8)Sixth
(S-8) First
(S-8)Fourth
(S-8) Fifth
⑲
(S-8) Third
(L-1)

Fig. M34

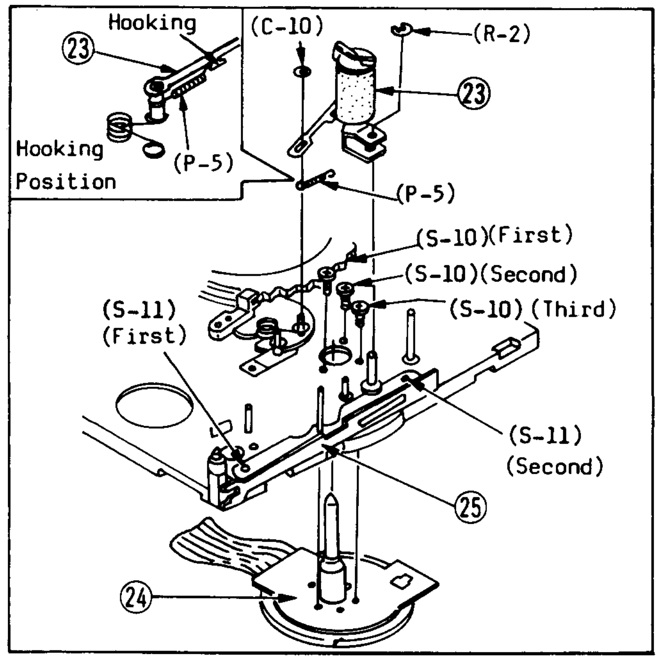
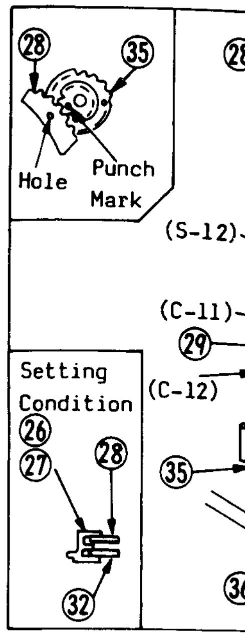
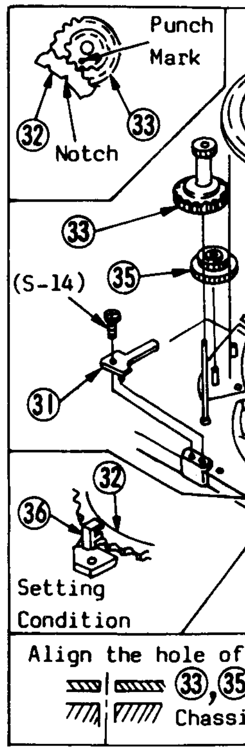

Hooking
㉓
Hooking Position
(P-5)
(C-10)
(R-2)
㉓
(P-5)
(S-10)(First)
(S-10)(Second)
(S-10) (Third)
(S-11) (First)
(S-11) (Second)
㉕
㉔

Fig. M35

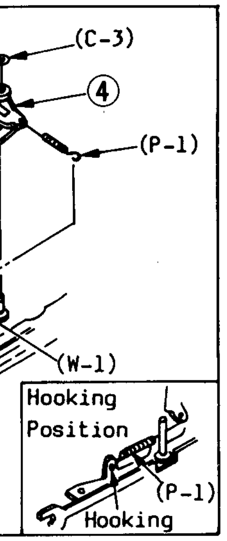

㉘
㉟
Hole
Punch Mark
(S-12)
(C-11)
㉙
(C-12)
Setting Condition
㉖
㉗
㉘
㉟
㉜

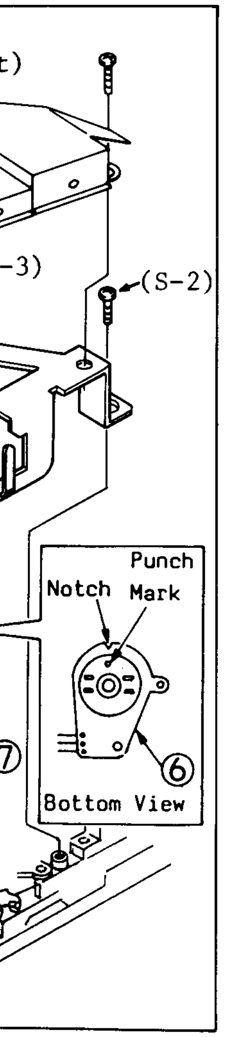

Punch Mark
㉜
Notch
㉝
㉝
(S-14)
㉟
㉛
㊱
㉜
Setting Condition

Align the hole of

▨|▨ ㉝,㉟

▨|▨ Chassi


(C-3)
④
(P-1)
(W-1)
Hooking Position
(P-1)
Hooking


t)
-3)
(S-2)
Notch
Punch Mark
⑦
⑥
Bottom View

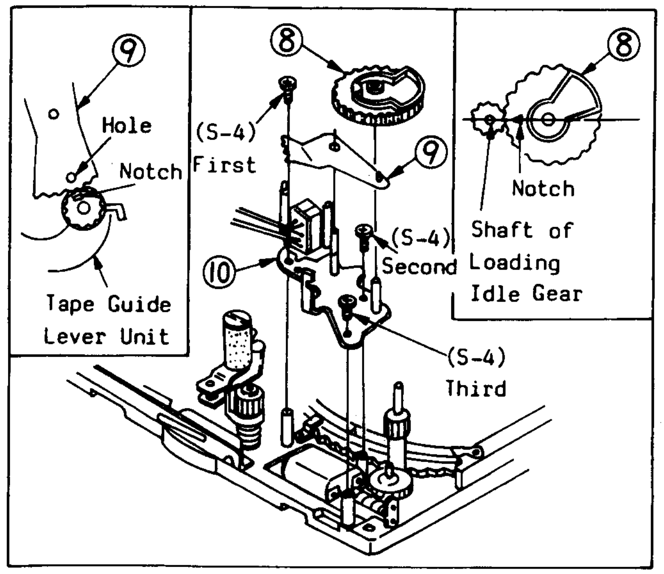
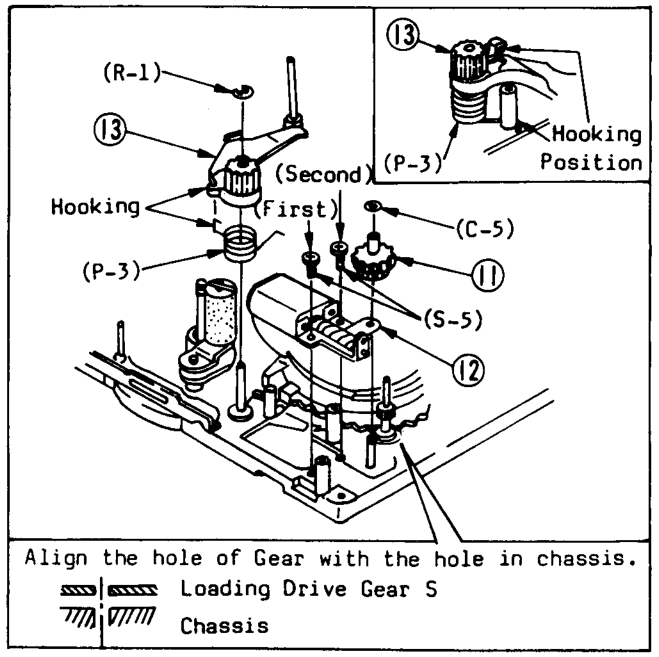

⑨
Hole
Notch
Tape Guide Lever Unit
⑧
(S-4) First
⑨
⑩
(S-4) Second
(S-4) Third
⑧
Notch
Shaft of Loading Idle Gear

Fig. M30


(R-1)
⑬
Hooking
(Second)
(First)
(P-3)
(C-5)
⑪
(S-5)
⑫
⑬
(P-3)
Hooking Position

Align the hole of Gear with the hole in chassis.
▨ Loading Drive Gear S
▨ Chassis

Fig. M31

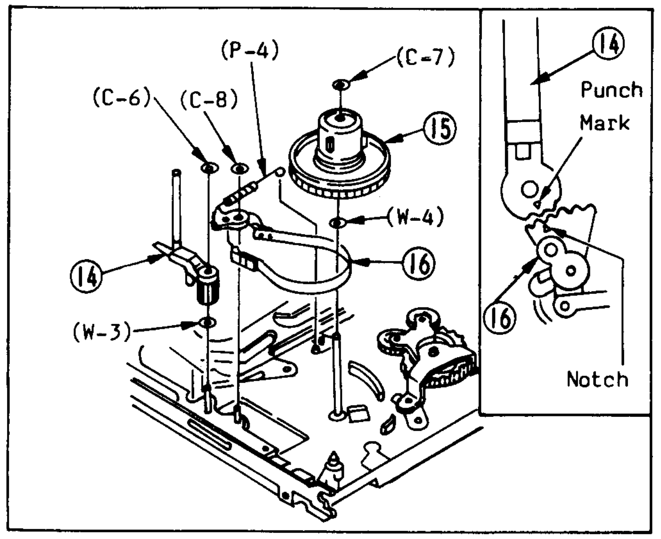

(P-4)
(C-7)
(C-6)
(C-8)
⑮
(W-4)
⑯
⑭
(W-3)
⑭
Punch Mark
⑯
Notch

Fig. M32

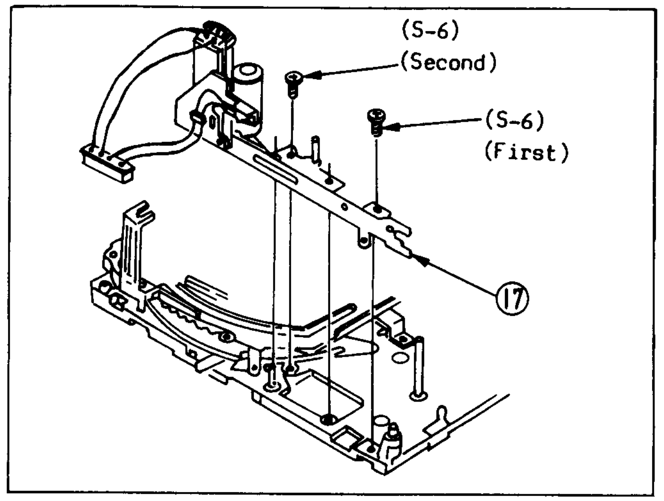

(S-6) (Second)
(S-6) (First)
⑰

Fig. M33

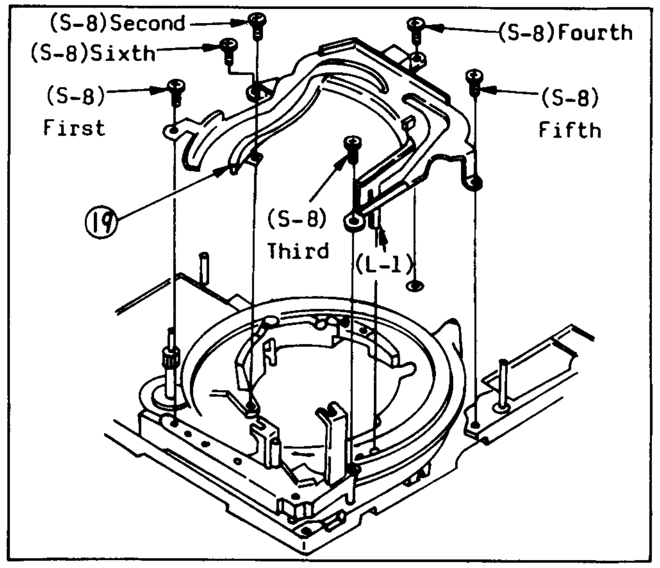

(S-8)Second
(S-8)Sixth
(S-8) First
(S-8)Fourth
(S-8) Fifth
⑲
(S-8) Third
(L-1)

Fig. M34

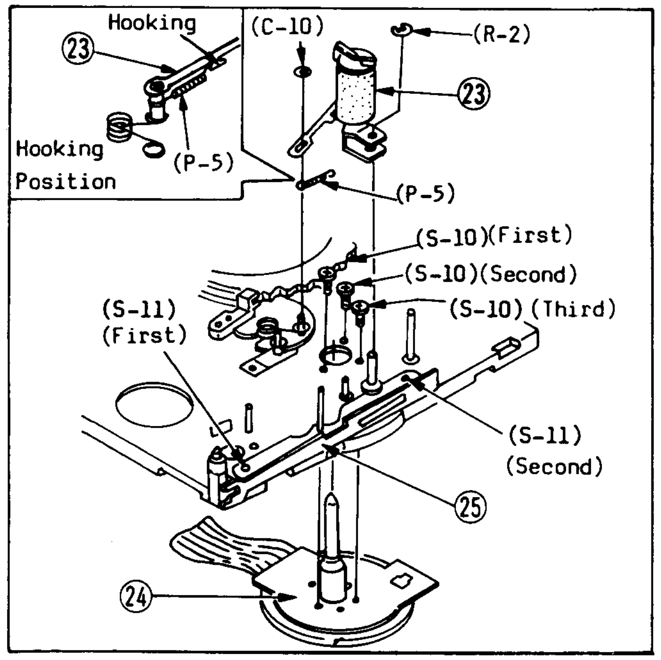

Hooking
㉓
Hooking Position
(P-5)
(C-10)
(R-2)
㉓
(P-5)
(S-10)(First)
(S-10)(Second)
(S-10) (Third)
(S-11) (First)
(S-11) (Second)
㉕
㉔

Fig. M35

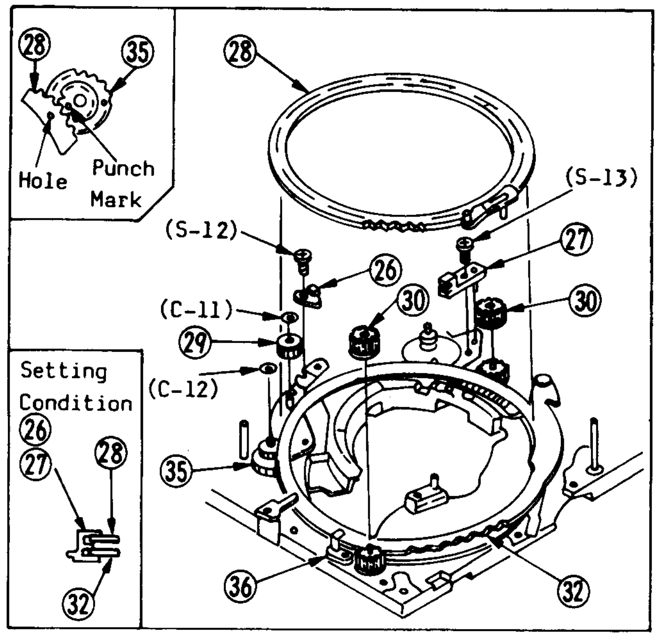
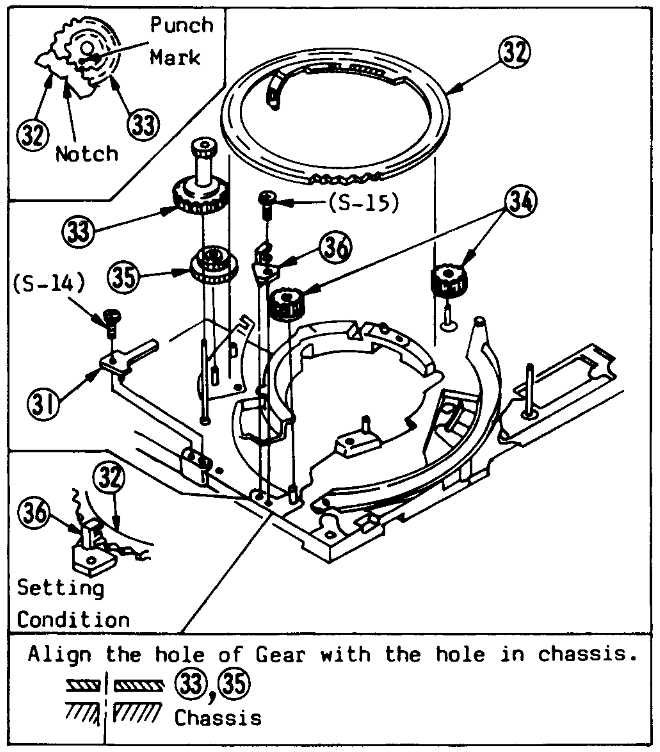

㉘
㉟
Hole
Punch Mark
㉘
(S-13)
(S-12)
㉖
㉗
(C-11)
㉚
㉚
㉙
(C-12)
Setting Condition
㉖
㉗
㉘
㉜
㉟
㊱
㉜

Fig. M36


Punch Mark
㉜
㉝
Notch
㉜
㉞
(S-15)
㉝
㊱
(S-14)
㉟
㉛
㊱
㉜
Setting Condition

Align the hole of Gear with the hole in chassis.
▨ ㉝,㉟
▨ Chassis

Fig. M37

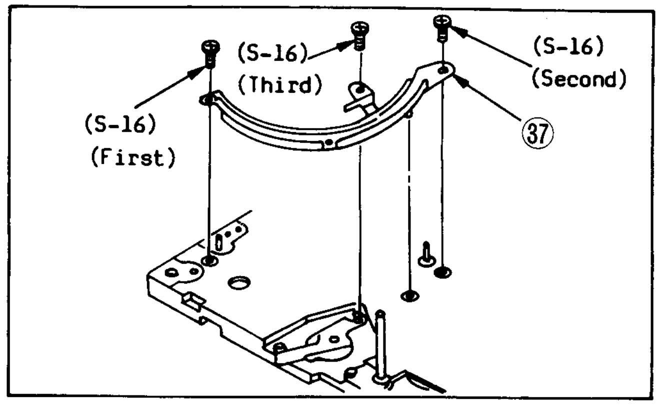

(S-16) (Third)
(S-16) (Second)
(S-16) (First)
㊲

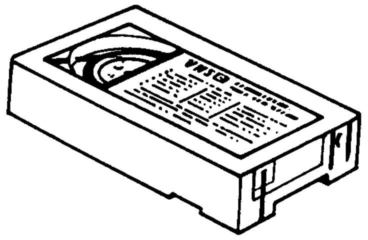
Fig. M38

Reference's <Notes> in Table 7 :

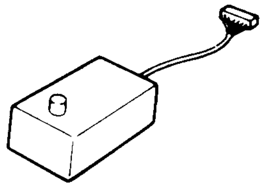
1. This Cut Washer is not reusable. If removed, install a new one.
2. In each figure, tighten the screws in the order indicated in the diagram.
3. Remove the shield cover over the PG Pickup to allow the release of (L-1).

Service Fixtures & Tools

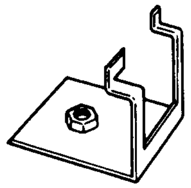
VFM8180H8PF **VHS-C Alignment Tape**



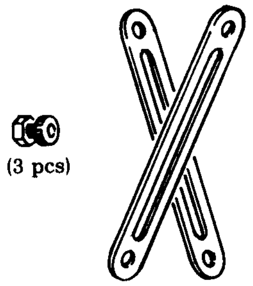
VFK0304 **Y/C Separator**



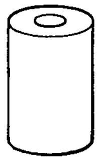
VFK0382 **CAMERA HOLDER**



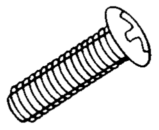
VFK0431 **Camera Holder Arm**



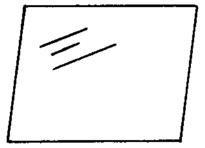
VFK0432 **Holder Spacer**



XSN26+18 **Screw**

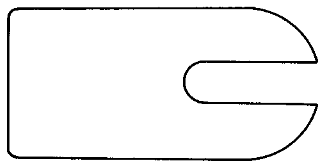


VFK0374 (C12)
VFK0375 (C2)
VFK0547 (C8)

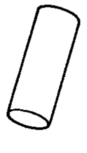


Colour Temperature Conversion Filter

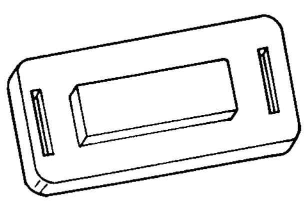
VMX1304 **Clearance Spacer**



VMS3504 **Alignment Shaft**



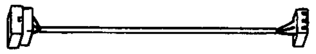
VKW1049 **Diffusion Plate**



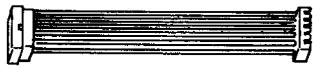
Extension Cables

Camera Section

VFKS0051 **Extension Cable (3P)**

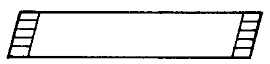


VFKS0052 **Extension Cable (6P)**

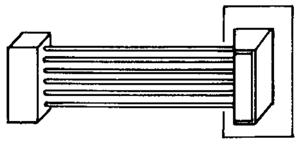


VFK0430 **Extension Cable (14P)**

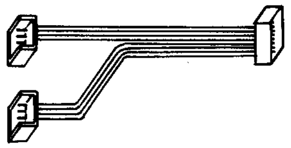
VFK0503 **Extension Cable (5P)**



VFK0380 **Extension Cable (18P)**

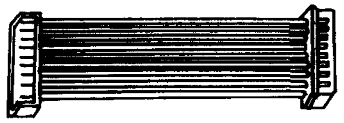


VFK0497 **Extension Cable (6P)**

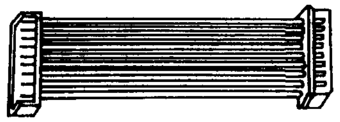


VTR Section

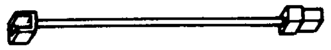
VFK0493 **Extension Cable (22P)**



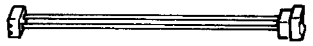
VFKS0075 **Extension Cable (16P)**



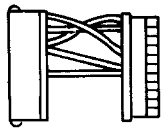
VFKS0060 **Extension Cable (2P)**



VFK0499 **Extension Cable (3P)**



VFKS0074 **Connector**



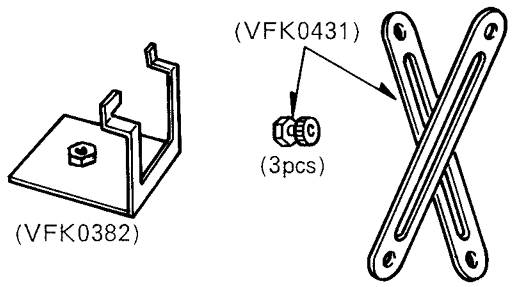
2-4. ELECTRICAL ADJUSTMENT PROCEDURES

2-4-1. ELECTRICAL ADJUSTMENT FOR CAMERA SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the CAMERA section.

1. Oscilloscope
   Dual Trace, 50MHz, 2mV/DIV,
   10 : 1 Probe
   1 : 1 Probe
2. Digital Volt Meter or VTVM
3. Frequency Counter
4. Vectorscope
5. Light Meter
6. Tripod
7. Colour Video Monitor
8. Lighting
   140 foot-candles (1400lux), on the chart surface 3200 degrees K.
9. Reflection Chart
   - *Logarithmic Gray Scale Chart (Part No. : YWV2310RB99)
   - *Colour Chip Chart (Part No. : YWV2100RB98)
   - *Ball Chart (Part No. : YWV2100RB03)
   - *Hunting Chart (Part No. : VFK0546)
   - *White Chart (Card) (Part No. : VFK0546)
   - *J Chart (Part No. : YWV2100RB03)
   - *B/W Chart (Part No. : VFK0546)
   - *Gray-White Chart (Part No. : VFK0546)
   - *Colour Bar Chart (Part No. : VFKS003B)
10. Plastic Tip Driver
11. Camera Unit Holder
    (Part No. : VFK0382)
12. Camera Holder Arm
    (Part No. : VFK0431)



CAMERA UNIT HOLDER AND CAMERA HOLDER ARM

Fig.C1

13. Colour temperature conversion filter
    *C12 Filter (Part NO. : VFK0374)
    *C2 Filter (Part NO. : VFK0375)
    *C8 Filter (Part NO. : VFK0547)
14. Camera Extension Cables
    *Extension Cable(3P) (Part No.:VFKS0051)
    *Extension Cable(6P) (Part No.:VFKS0052)
    *Extension Cable(14P) (Part No.:VFK0430)
    *Extension Cable(5P) (Part No.:VFK0503)
    *Extension Cable(18P) (Part No.:VFK0380)
    *Extension Cable(6P) (Part No.:VFK0497)

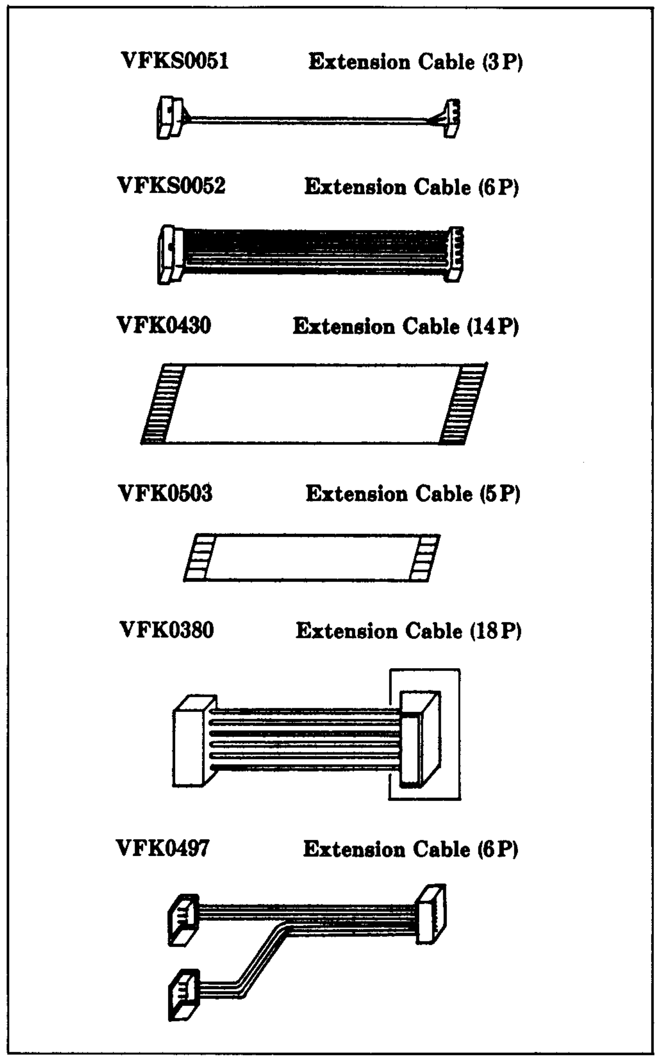

VFKS0051 Extension Cable (3P)
VFKS0052 Extension Cable (6P)
VFK0430 Extension Cable (14P)
VFK0503 Extension Cable (5P)
VFK0380 Extension Cable (18P)
VFK0497 Extension Cable (6P)

Fig.C2

PREPARATION

1). Remove the Side Case (L) and Side Case (R) from the Unit.
(Refer to the Disassembly Section.)
2). Mount the Camera Unit on the tripod using the Camera Unit Holder (VFK0382) and Camera Holder Arm (VFK0431).
3). Connect the Camera Unit, Video Recorder Unit, AC Adaptor, Camera Operation Unit and Colour Monitor TV as shown in Fig. C3.
4). Remove the flexible Cable (Which is connected between FP306 and P3504).
5). Connect the Extension cable (VFK0430) between FP306 and P3504.
6). Set the camera unit to tripod using camera holder (VFK0382) and camera holder arm (VFK0431). (refer to Technical Information).

To
So

Note:
<STANDARD
ADJUSTMEN
If there is
adjustment
as follows :

1) White Balan
Iris VR
Auto Focus
High Speed
2) For Trigger
To trigge
terminal FP
3) Lighting ---

4) Service wo
performed i
lens cleanlin

HOLDER

Screw

Cable (22P)

Cable (16P)

Cable (2P)

Cable (3P)

Connector

2-4. ELECTRICAL ADJUSTMENT PROCEDURES

2-4-1. ELECTRICAL ADJUSTMENT FOR CAMERA SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the CAMERA section.

1. Oscilloscope
   Dual Trace, 50MHz, 2mV/DIV,
   10 : 1 Probe
   1 : 1 Probe
2. Digital Volt Meter or VTVM
3. Frequency Counter
4. Vectorscope
5. Light Meter
6. Tripod
7. Colour Video Monitor
8. Lighting
   140 foot-candles (1400lux), on the chart surface 3200 degrees K.
9. Reflection Chart
   *Logarithmic Gray Scale Chart
   (Part No. : YWV2310RB99)
   *Colour Chip Chart
   (Part No. : YWV2100RB98)
   *Ball Chart
   (Part No. : YWV2100RB03)
   *Hunting Chart
   (Part No. : VFK0546)
   *White Chart (Card)
   (Part No. : VFK0546)
   *J Chart
   (Part No. : YWV2100RB03)
   *B/W Chart
   (Part No. : VFK0546)
   *Gray-White Chart
   (Part No. : VFK0546)
   *Colour Bar Chart
   (Part No. : VFKS003B)
10. Plastic Tip Driver
11. Camera Unit Holder
    (Part No. : VFK0382)
12. Camera Holder Arm
    (Part No. : VFK0431)

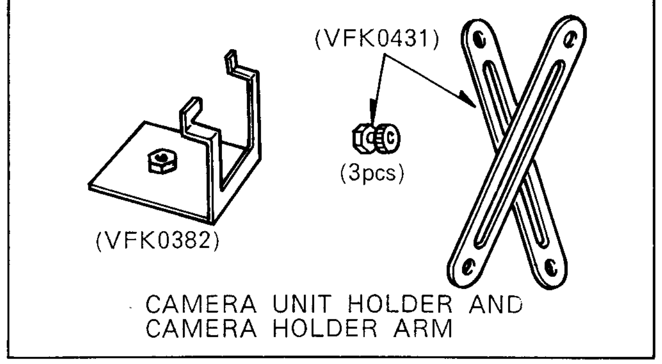

(VFK0431)
(3pcs)
(VFK0382)
CAMERA UNIT HOLDER AND
CAMERA HOLDER ARM

Fig.C1

13. Colour temperature conversion filter
    *C12 Filter (Part NO. : VFK0374)
    *C2 Filter (Part NO. : VFK0375)
    *C8 Filter (Part NO. : VFK0547)
14. Camera Extension Cables
    *Extension Cable(3P) (Part No.:VFKS0051)
    *Extension Cable(6P) (Part No.:VFKS0052)
    *Extension Cable(14P) (Part No.:VFK0430)
    *Extension Cable(5P) (Part No.:VFK0503)
    *Extension Cable(18P) (Part No.:VFK0380)
    *Extension Cable(6P) (Part No.:VFK0497)

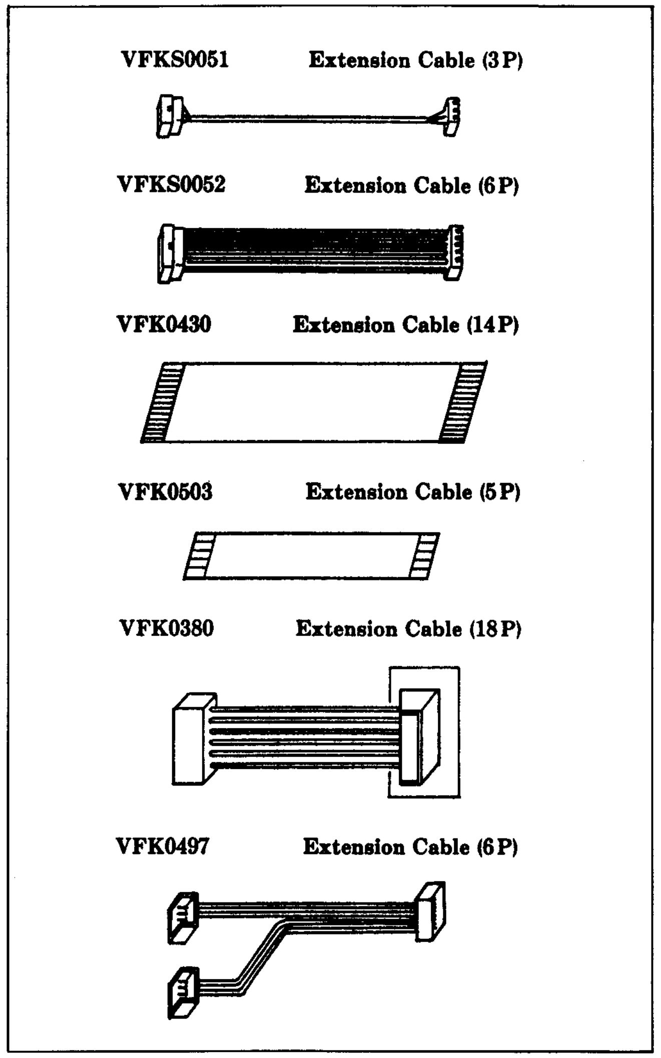

VFKS0051 Extension Cable (3P)
VFKS0052 Extension Cable (6P)
VFK0430 Extension Cable (14P)
VFK0503 Extension Cable (5P)
VFK0380 Extension Cable (18P)
VFK0497 Extension Cable (6P)

Fig.C2

PREPARATION

1). Remove the Side Case (L) and Side Case (R) from the Unit.
(Refer to the Disassembly Section.)
2). Mount the Camera Unit on the tripod using the Camera Unit Holder (VFK0382) and Camera Holder Arm (VFK0431).
3). Connect the Camera Unit, Video Recorder Unit, AC Adaptor, Camera Operation Unit and Colour Monitor TV as shown in Fig. C3.
4). Remove the flexible Cable (Which is connected between FP306 and P3504).
5). Connect the Extension cable (VFK0430) between FP306 and P3504.
6). Set the camera unit to tripod using camera holder (VFK0382) and camera holder arm (VFK0431). (refer to Technical Information).

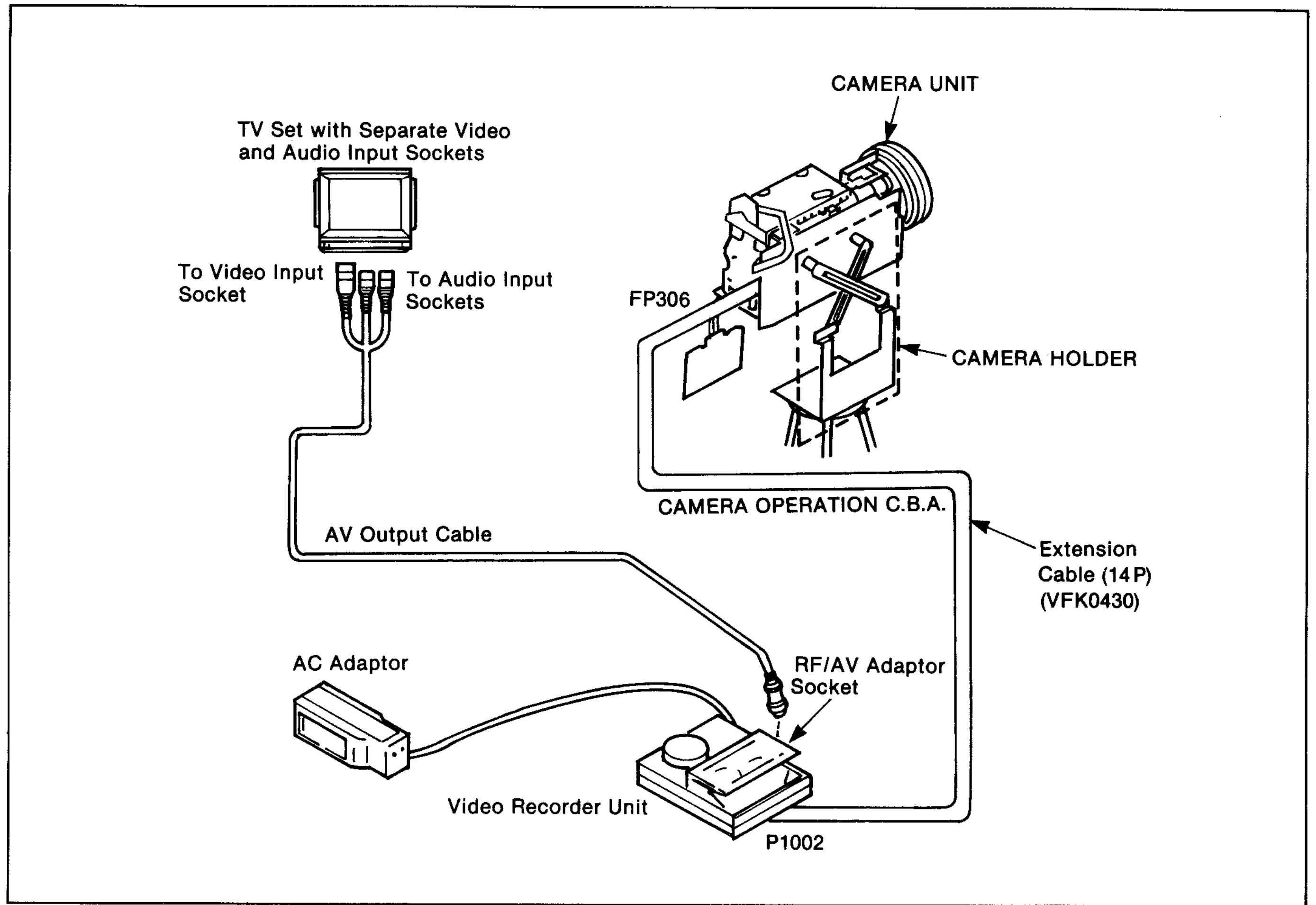

CAMERA UNIT
TV Set with Separate Video and Audio Input Sockets
To Video Input Socket
To Audio Input Sockets
FP306
CAMERA HOLDER
CAMERA OPERATION C.B.A.
AV Output Cable
Extension Cable (14P) (VFK0430)
AC Adaptor
RF/AV Adaptor Socket
Video Recorder Unit
P1002

Fig.C3

Note:
<STANDARD SETTING FOR CAMERA ADJUSTMENT>
If there is no switch setting indication in adjustment procedures, set the camera switch as follows :

1) White Balance Switch ---- Indoor
   Iris VR ---- Centre
   Auto Focus ---- OFF (Manual)
   High Speed Shutter ---- OFF
2) For Trigger
   To trigger oscilloscope, use video out terminal FP306-7.
3) Lighting ---- use 3200 degree kelvin (colour temperature) halogen lamp or other light source (3200 degree K)
4) Service work for camera unit must be performed in a dust-free location to maintain lens cleanliness.

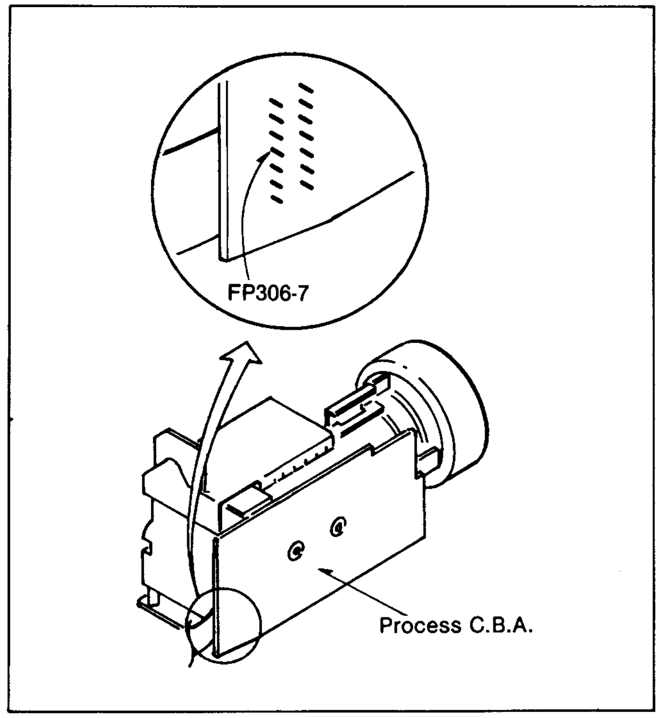

FP306-7
Process C.B.A.

Fig. C4-1

HOW TO USE CAMERA HOLDER ARM (VFK0431)

This Camera Holder Arm which is adjustable the span must be mounted to VFK0382 and it can be used with VFK0432 for camera adjustment or checking.

(A) --- VFK0432 Holder Spacer (2pcs.)
(B) --- VFK0431 Camera Holder Arm
(C) --- XSN26+18 Screw (2pcs.)
(D) --- VFK0382 Camera Holder

(1) Fix the Holder Arm (4) and (5) temporarily by screw (1) as shown in Fig. C4-2.
(2) Mount the Camera Holder Arm (B) to the Camera Holder (D) by screws (2) and (3) as shown in Fig. C4-3.
(3) Tighten the screws (C) with the Holder Spacers (A) as shown in Fig. C4-2.

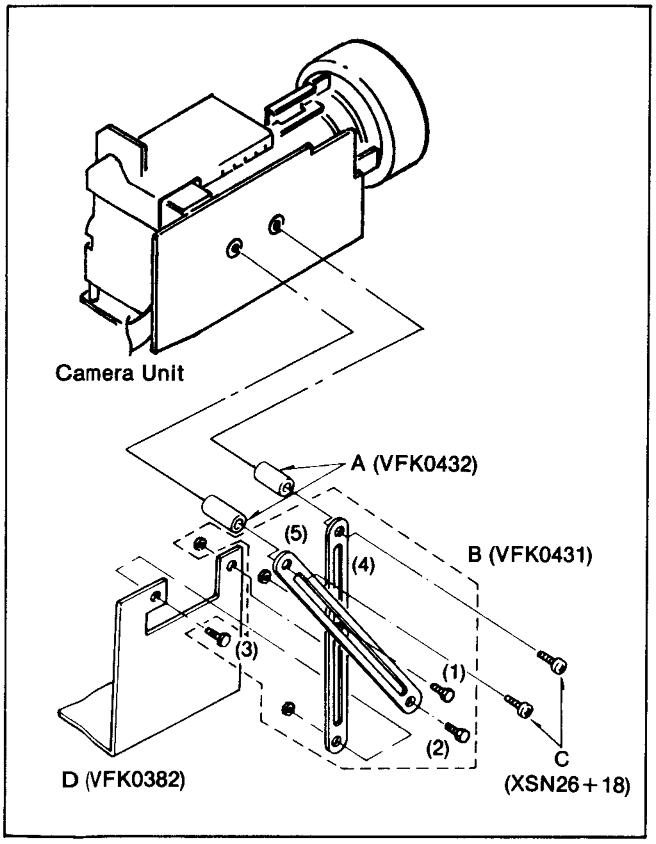

Camera Unit
A (VFK0432)
B (VFK0431)
(5)
(4)
(3)
(1)
(2)
C
(XSN26+18)
D (VFK0382)

Fig. C4-2

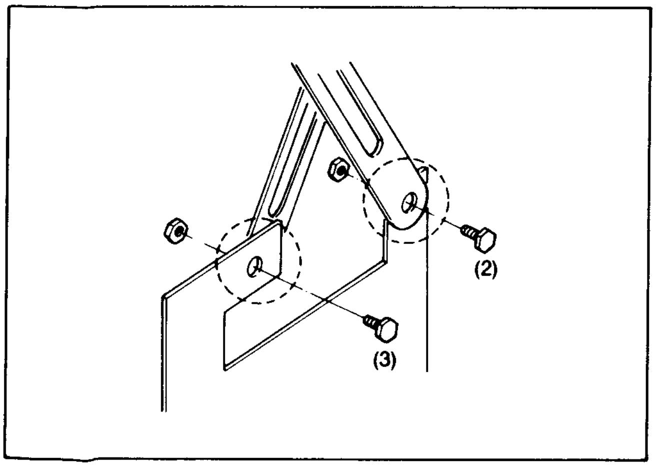
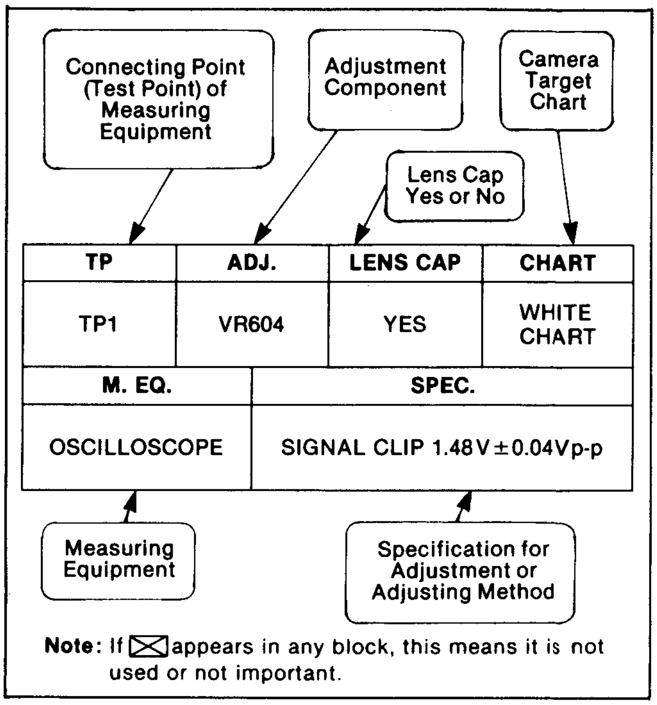


Fig. C4-3

HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Adjustment Component
Camera Target Chart
Lens Cap Yes or No
Measuring Equipment
Specification for Adjustment or Adjusting Method

TP	ADJ.	LENS CAP	CHART
TP1	VR604	YES	WHITE CHART

M. EQ.	SPEC.
OSCILLOSCOPE	SIGNAL CLIP 1.48V±0.04Vp-p

Note: If ☒ appears in any block, this means it is not used or not important.

Fig. C5-1

CCD DRIVE SECTION

1. BACK FOCUS ADJUSTMENT
2. PLL FREQUENCY ADJUSTMENT
3. OR BIAS ADJUSTMENT
4. V-SUB ADJUSTMENT
5. CCD OUTPUT ADJUSTMENT

PROCESS SECTION

6. PEDESTAL LEVEL ADJUSTMENT
7. ALC ADJUSTMENT
8. AGC ADJUSTMENT
9. IRIS VR ADJUSTMENT
10. Y 1H/2H DELAY LEVEL ADJUSTMENT
11. YH LEVEL ADJUSTMENT
12. CARRIER BALANCE AND BLACK LEVEL ADJUSTMENT
13. CHROMA 1H/2H DELAY LEVEL ADJUSTMENT
14. INDOOR WHITE BALANCE ADJUSTMENT
15. OUTDOOR WHITE BALANCE ADJUSTMENT
16. AWB OFFSET ADJUSTMENT
17. COLOR BURST AND R-Y/B-Y GAIN ADJUSTMENT
18. COLOUR PHASE AND R-Y/B-Y GAIN ADJUSTMENT
19. HIGH INTENSITY SUPPRESS ADJUSTMENT

20-1. AWT MODE (OFFSET) ADJUSTMENT

20-2. AWT MODE (GAIN) ADJUSTMENT

20-3. HIGH COLOUR TEMPERATURE ADJUSTMENT

AUTO FOCUS SECTION

21. AF GATE ADJUSTMENT
22. BIMOLF GAIN CONTROL ADJUSTMENT
23. AF AMP BIAS GAIN ADJUSTMENT
24. AF VH FREQUENCY ADJUSTMENT

Fig. C5−2

CCD DRIVE SECTION

1. BACK FOCUS ADJUSTMENT

(1) Aim the Camera at the Hunting Chart 3m distance and zoom all the way in (Fully tele position.)

(2) Focus the lens on the object.

(3) Confirm that Focus−ring indicates 3m.

(4) Adjust the relay lens adjustment point as shown in Fig. C6.

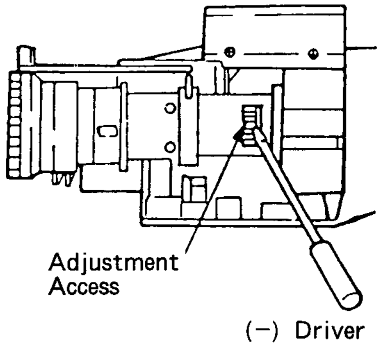


Fig.C6

(5) Zoom all the way back and adjust the back focus pitch so that the sharpest focus is obtained.

(6) Repeat the procedure as follows, zoom in, focus, zoom out and adjust until the best focus is obtained over the entire Zoom range.

2. PLL FREQUENCY ADJUSTMENT

(1) Remove the Sensor Shield Case by removing its 2 Screw.

TP	ADJ.	LENS CAP	CHART
PIN 7 OF B201	C292		

M. EQ.	SPEC.
FREQUENCY COUNTER	12.875MHz +- 10Hz

Note:
B201, C292 : Sensor C.B.A.

3. ΦR BIAS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP201	VR203	NO	J CHART

M. EQ.	SPEC.
OSCILLOSCOPE	WAVEFORM "A" IS MAXIMIZED

Note:
VR203, VR201, TP201 : ON SENSOR C.B.A.
TP516, TP520 : ON PROCESS C.B.A.

(1) Set the zoom ring to fully TELE position. Aim the camera at J chart and connect the jumper wire between TP516 and TP520.
(2) Pre-adjust VR201 (V-SUB VR) so that blooming or smear (vertical line) is appeared on TV screen.
(3) Connect the oscilloscope to TP201.
(4) Adjust the VR203 so that level "A" is maximized and signal does not distorted.

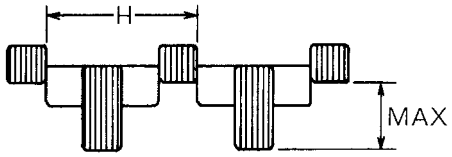


Fig.C7

4. V-SUB ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR201	NO	HALOGEN LAMP

M. EQ.	SPEC.
MONITOR TV	NO BLOOMING

(1) Zoom all the way in (Fully tele position) and aim the camera at the Halogen Lamp as shown in Fig. C8-1:

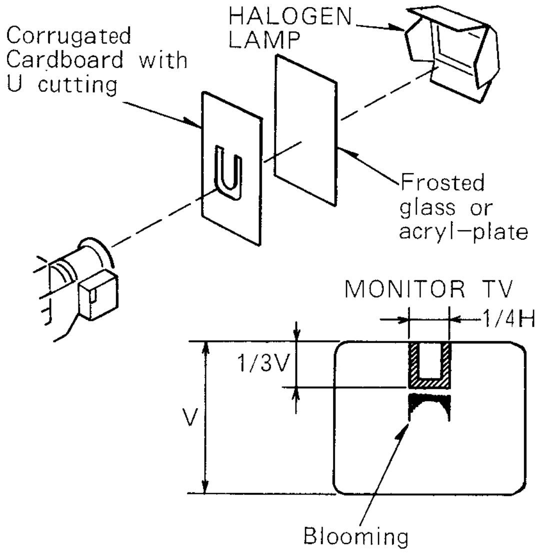

HALOGEN LAMP
Corrugated Cardboard with U cutting
Frosted glass or acryl-plate
MONITOR TV
1/4H
1/3V
V
Blooming

Fig. C8-1

(2) Set the High Speed Shutter SW to "OFF" portion
(3) Blind the lighting using frosted glass or acryl plate to diffuse incoming light. And also put a corrugated cardboard which inside is cut to "U" shape as shown in Fig. C8-2.
(4) Connect the jumper wire between TP516 and TP520 to open the Iris.
(5) Adjust VR201 so that blooming is just disappear.
(If blooming is not disappeared completely, adjust until minimum blooming)
(6) High Speed Shutter "ON" and "OFF" both mode, confirm that the monitored picture does not contain the Blooming even if the camera moves as shown in Fig. C8-2.

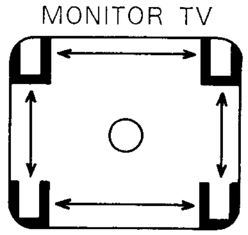


Fig. C8-2

Note:
J chart is also available for rough adjustment.

(1) Aim the camera at J chart.
(2) Set the lens to fully Tele position.
And set the distance so that lower 1/3 of J chart comes to full picture frame of TV screen.
(3) Connect the jumper wire between TP516 and TP520 to open the Iris.
(4) Adjust the VR201 so that blooming is just disappeared.

5. CCD OUTPUT ADJUSTMENT

TP	**ADJ.**	**LENS CAP**	**CHART**
TP201	VR202	NO	J CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		180mV+−10mV	

Note1:
TP201, VR202 : Sensor C.B.A.
TP515, VR327 : Process C.B.A.

(1) Aim the camera to J chart.
(2) Adjust the VR327 (Iris control) so that voltage at TP515 becomes 300mV +− 10mV.
(3) Adjust the VR202 (CCD OUT control) so that level "A" becomes 180mV +− 10mV as shown in Fig C9.

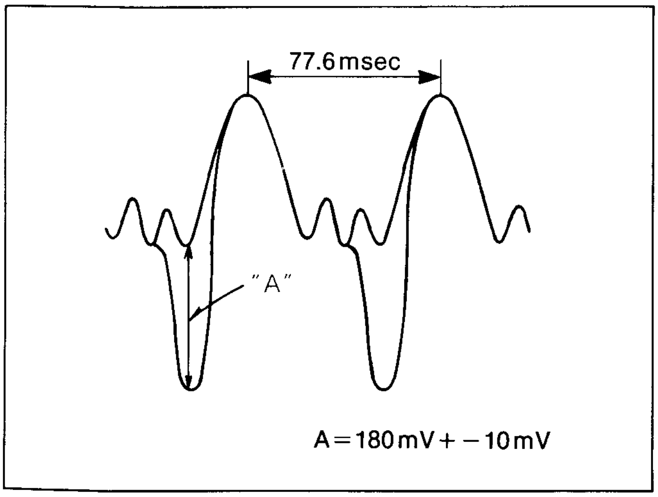


Fig.C9

PROCESS SECTION

6. PEDESTAL LEVEL ADJUSTMENT

TP	**ADJ.**	**LENS CAP**	**CHART**
TP514	VR301	YES	
M. EQ.		**SPEC.**	
OSCILLOSCOPE		SIGNAL LEVEL EQUALS THE BLANKING (BLANK) LEVEL.	

Note:
TP514, VR301 : Process C.B.A.

(1) Cover the Camera Lens with the Lens Cap.
(2) Connect the scope to TP514 and trigger with Pin 7 of FP306 (H−Rate).
(3) Adjust the Pedestal Level Control (VR301) so that the signal level equals the BLK level as shown in Fig. C10.

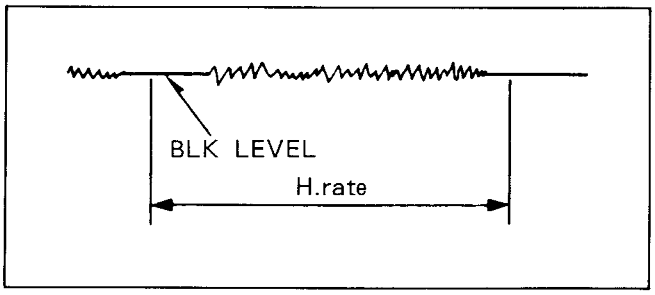


Fig.C10

7. ALC ADJUSTMENT

TP	**ADJ.**	**LENS CAP**	**CHART**
TP515	VR327	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		0.28V+−0.02Vp-p	

Note:
TP515, VR327 : Process C.B.A.

(1) Set the Iris VR to centre fix position.
(2) Aim the camera at the gray scale chart.
(3) Connect the scope to TP515 and trigger with Pin 7 of FP306 (H−Rate).
(4) Adjust the Camera Unit to obtain 40usec picture frame as shown in Fig. C11.
(5) Adjust the Auto Iris Control (VR327) so that the signal level is 0.28V +− 0.02Vp−p.

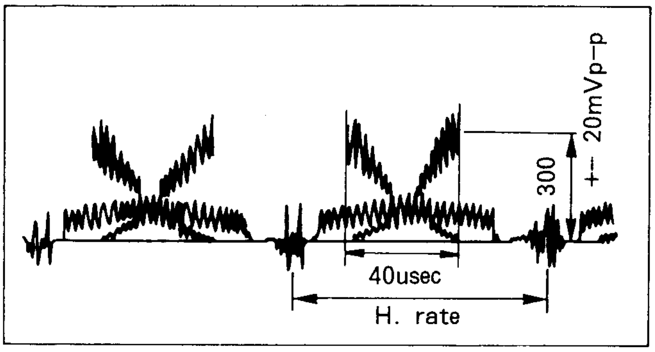


Fig.C11

8. AGC ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP514	VR324	NO	GRAY SCALE CHART

M. EQ.	SPEC.
OSCILLOSCOPE	0.30V +– 0.02Vp–p

Note 1:
TP514, VR324 : Process C.B.A.

Note 2:
Confirm that voltage at TP523 is less than 3V. If not, adjust Iris VR.

(1) Aim the camera at the gray scale chart.
(2) Connect the scope to TP2 and trigger with Pin 7 of FP306 (H–Rate).
(3) Adjust the Camera Unit to obtain 40usec picture frame as shown in Fig. C12.
(4) Adjust the AGC Control (VR324) so that the signal level is 0.30V +– 0.02Vp–p.

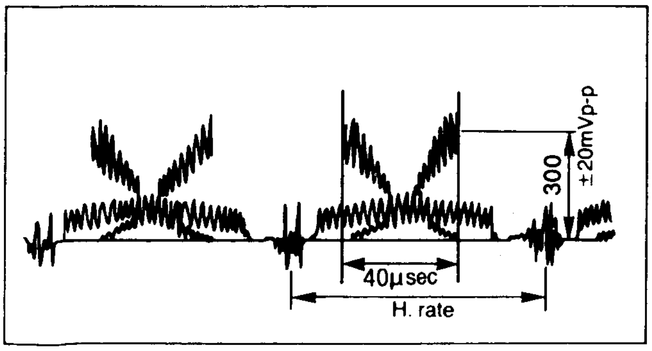


Fig.C12

9. IRIS VR ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP523	VR322	YES	

M. EQ.	SPEC.
D.V.M	2.1V±0.1V

Note:
TP523, VR322 : Process C.B.A.

(1) Set the Iris VR to centre fix position.
(2) Cover the lens with lens cap.
(3) Connect the volt meter to TP523.
(4) Adjust the VR322 so that voltage at TP523 becomes 2.1V +– 0.1V.

10. Y 1H/2H DELAY LEVEL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TS5, TS2, TS8 (TEST ROUND)	VR320 VR318	NO	GRAY SCALE

M. EQ.	SPEC.
OSCILLOSCOPE	0±4.5mVp-p

Note: VR320, TS5, TS2, TS8 : PROCESS C.B.A.
: (The gain CHA, CHB for oscilloscope should be same)

(1) Aim the camera at gray scale chart.
(2) Connect the oscilloscope to TS5 (CHA) and TS2 (CHB).
(3) Set the CHB for "INVERT" mode.
(4) Set the oscilloscope for "ADD" mode.
(5) Adjust the 1H delay level control (VR320) so that waveform becomes 0 +– 4.5mVp–p as shown below.
(6) Reconnect the CHB probe to TS8, (CHA is still connecting to TS5
CHB : INVERT mode.
oscilloscope : ADD mode.)
(7) Adjust the 2H delay level control (VR318) so that waveform becomes 0 +– 4.5mVp–p as shown below.

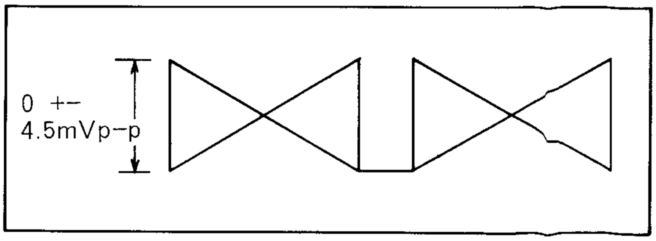


Fig.C13–1

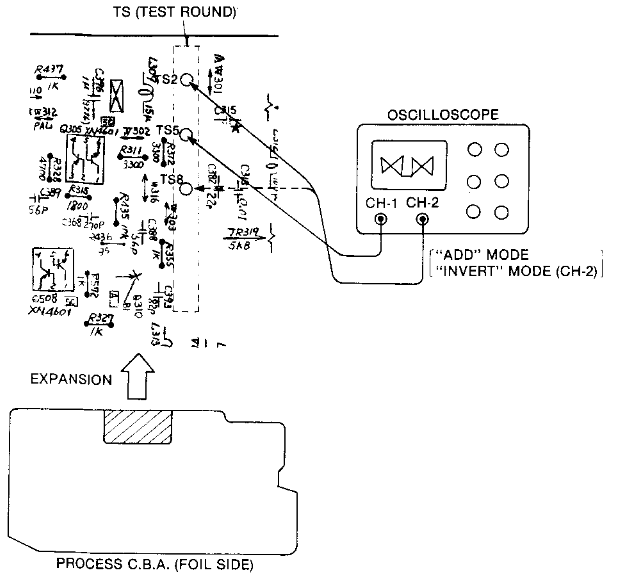

TS (TEST ROUND)
S2
TS5
TS8
OSCILLOSCOPE
CH-1 CH-2
"ADD" MODE
"INVERT" MODE (CH-2)
EXPANSION
PROCESS C.B.A. (FOIL SIDE)

Fig.C13-2

11. YH LEVEL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
PIN 7 OF FP 306	VR315	NO	GRAY SCALE CHART

M. EQ.	SPEC.
OSCILLOSCOPE	B/A = 2.33 +- 0.15

Note:

VR315, FP306 : Process C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Connect the jumper wire among TP511,TP512 and TP513.
(3) Connect the scope to pin 7 of FP306. (Refer to Fig. C15)
(4) Adjust the YH Level Control (VR315) so that the signal level "B/A" is 2.33 +- 0.15 as shown in Fig. C14.
(5) Disconnect the jumper wire.

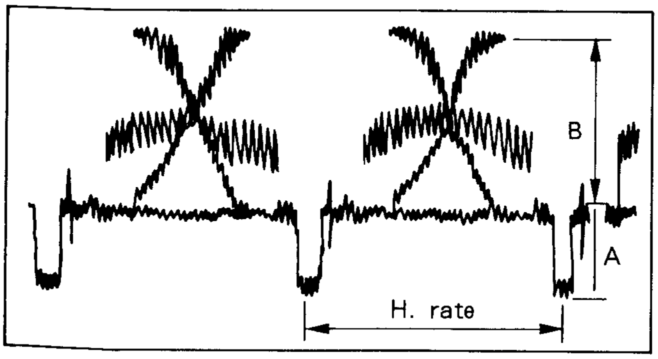


Fig.C14

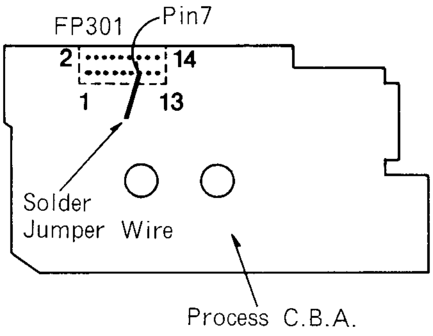

FP301
Pin7
2
14
1
13
Solder
Jumper Wire
Process C.B.A.

Fig.C15

12. CARRIER BALANCE AND BLACK PEDESTAL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR305 VR306 VR303 VR304	YES	

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:

VR305, VR306, VR303, VR304 : Process C.B.A.
TP511, TP512, TP513, TP522, TP511

WITH VECTORSCOPE

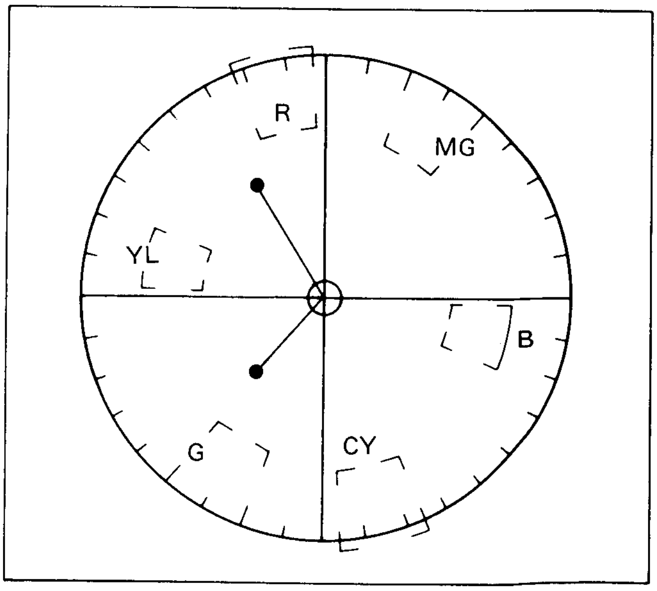


Fig.C16

(1) Cover the Camera Lens with the Lens Cap.
(2) Connect the jumper wire among TP511, TP512, and TP513 on process C.B.A. (to cut the feed back line (R−Y,B−Y))
(3) Connect the jumper wire between TP522 and TP511 to minimize AGC gain.
(4) Adjust the Black Pedestal Control (VR305, VR306) so that the colour vectors at the centre of screen on the vectorscope.
(5) Disconnect the jumper wire only between TP522 and TP511.
(6) Adjust the Carrier Balance Controls (VR303 and VR304) so that the colour vectors collect at the centre of screen on the vectorscope.

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR305, and VR306, first and Adjust VR303, VR304 next so that the waveform is minimized as shown in Fig. C17.

13. CHROMA 1H/2H DELAY LEVEL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TS7,TS10, TS11 (TEST ROUND)	VR319 VR317	YES	
M. EQ.		**SPEC.**	
OSCILLOSCOPE		0±4.5mV	

(1) Cover the camera lens with the lens cap.
(2) Supply the "WHD" signal(B305−2:process C.B.A) to TS7(test round) through the Buffer circuit and adjust VR1(on Buffer circuit) so that the voltage of TS7(test round) becomes 300mVp−p+−5mVp−p as shown in Fig.C18−1.

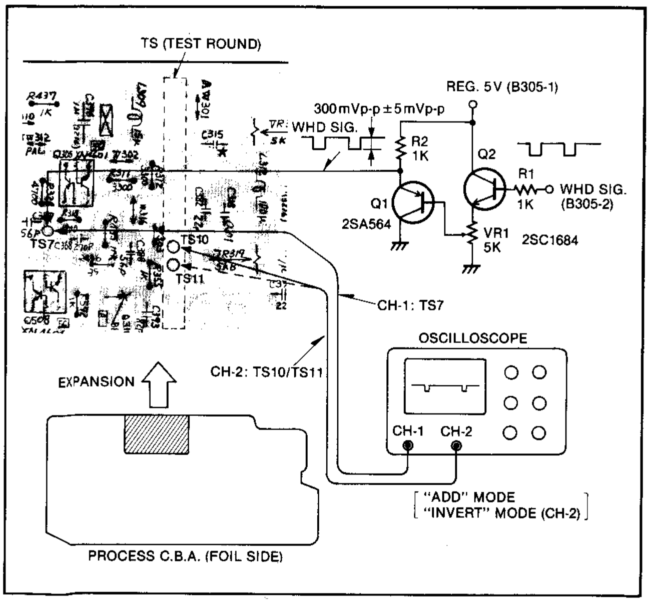


Fig.C18−1

(3) Set the oscilloscope to"ADD" mode and "INVERT" mode for CH−2.
And connect the oscilloscope CH−1 to TS7(test round) and CH−2 to TS10(test round).
(4) Adjust VR319 so that the level of waveform becomes 0+−4.5mV as shown in Fig.C18−2.
(5) Connect the oscilloscope CH−1 to TS7(test round) and CH2 to TS11(test round).
(6) Adjust VR317 so that the level of waveform becomes 0+−4.5mVp−p as shown in Fig.C18−2.

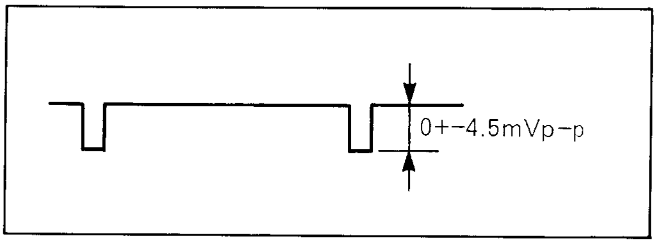


Fig.C18−2

14. INDOOR WHITE BALANCE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR311 VR312	NO	WHITE CHART
M. EQ.	**SPEC.**		
VECTORSCOPE	CENTER OF VECTORSCOPE		
OSCILLOSCOPE	WAVEFORM IS MINIMIZED		

Note:
VR311, VR312 : Process C.B.A.

WITH VECTORSCOPE

(1) Set the White Balance Switch to "INDOOR" side.
(2) Connect the jumper wire among TP511, TP512 and TP513 on process C.B.A. to cut the R−Y, B−Y feed back loop.
(3) Aim the camera at the White Chart.
(4) Supply the video signal to the vectorscope.
(5) Adjust the White Balance Controls (VR311 and VR312) so that the colour vectors are collected at the centre of screen on the vectorscope as shown in Fig. C19.

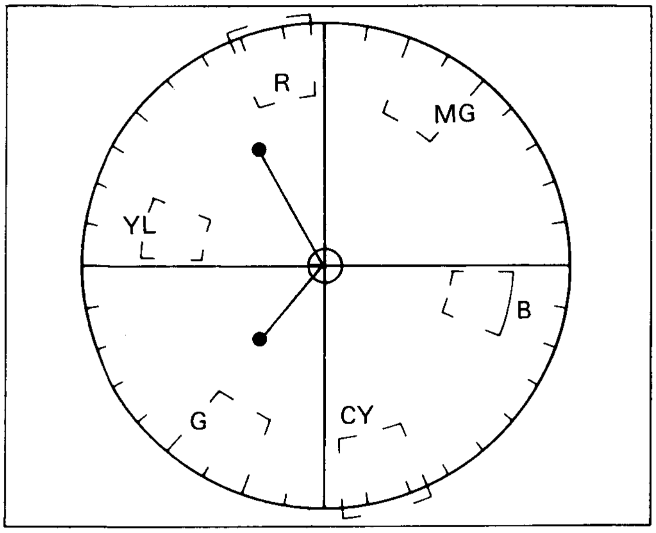


Fig.C19

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR311 and VR312 so that the waveform is minimized.

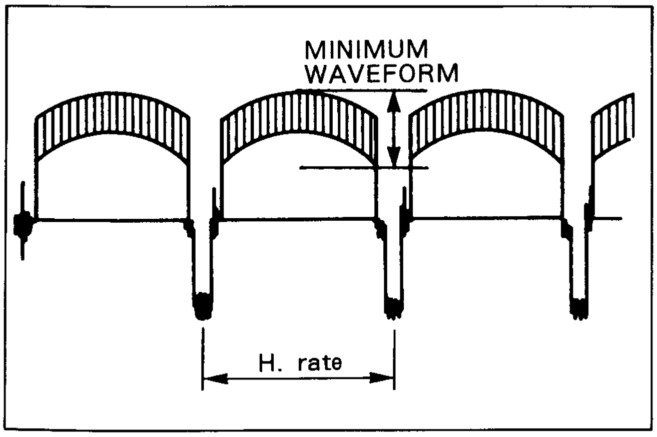


Fig.C20

15. OUTDOOR WHITE BALANCE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR528 VR529	NO	WHITE CHART
M. EQ.	**SPEC.**		
VECTORSCOPE	CENTER OF VECTORSCOPE		
OSCILLOSCOPE	WAVEFORM IS MINIMIZED		

Note:
VR528, VR529 : Process C.B.A.

WITH VECTORSCOPE

(1) Set the White Balance Switch on the Camera Operation Unit to the "OUTDOOR".
(2) Connect the jumper wire among TP511, TP512 and TP513 on Process C.B.A. to cut the R−Y, B−Y feed back loop.
(3) Aim the camera at the White Chart (lighting should be 3200 degrees K Halogen lamp.)
(4) Supply the video signal to the vectorscope.
(5) Attach the colour temperature conversion filter (VFK0374 and VFK0375) which convert 3200 degrees Kelvin to 5600 degrees Kelvin in front of the lens (Refer to Note 1).
(6) If the colour temperature conversion filter is not available, use a day light source. (Refer to Note 2)
(7) Adjust the White Balance (B−Y) Outdoor Gain and White Balance (R−Y) Outdoor Gain Controls (VR528 and VR 529) so that the colour vectors move to the centre of screen on the vectorscope. (Refer to Fig. C21)
(8) Remove the colour temperature conversion filter with the fixture from the lens.
(9) Remove the jumper wire from TP511, TP512, TP513.

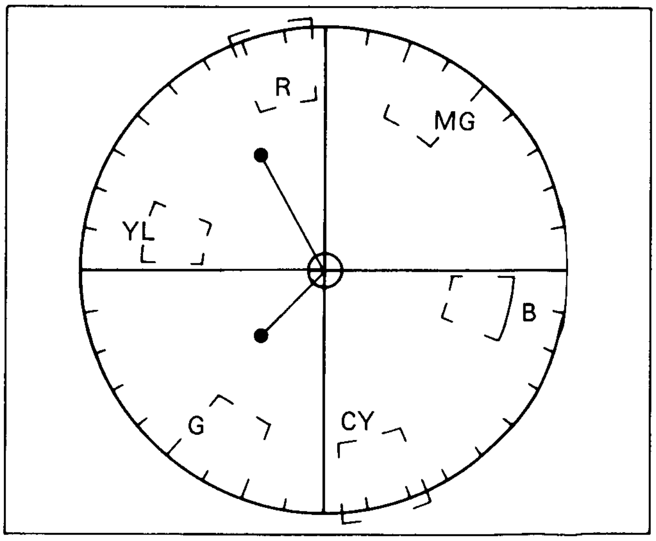


Fig.C21

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR528 and VR529 so that the waveform is minimized.

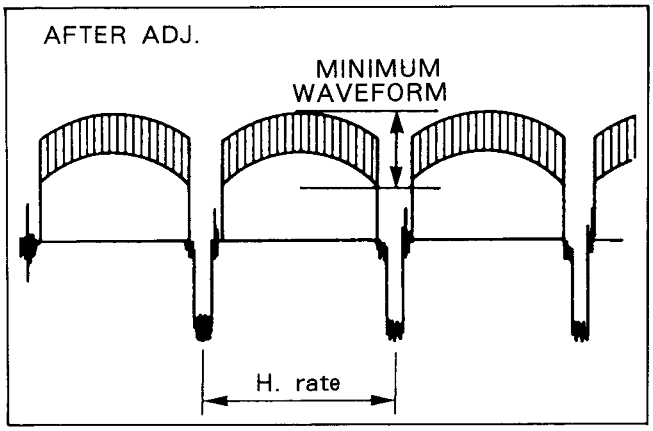

AFTER ADJ.
MINIMUM WAVEFORM
H. rate

Fig.C22

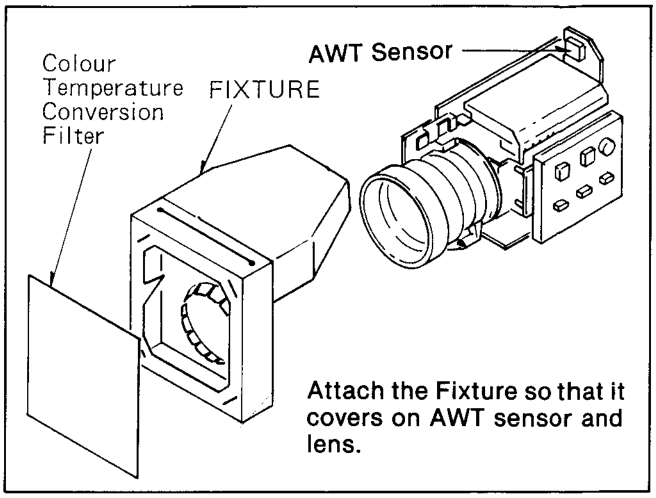

Colour Temperature Conversion Filter
FIXTURE
AWT Sensor
Attach the Fixture so that it covers on AWT sensor and lens.

Fig.C23

Note 1:
Attach the fixture (make a fixture yourself referring measurements and How to make fixture below shown in Fig. C24) to the lens and then set the colour temperature conversion filter to fixture.

<How to make a fixture>

a) Print the actual measure an the hard paper referring Fig.C24.
b) Cut the paper along the solid line.
c) Apply the past to the oblique line.
d) Fold the paper along the dotted line.
e) Construct the fixture referring completion drawing as shown in Fig. C24.

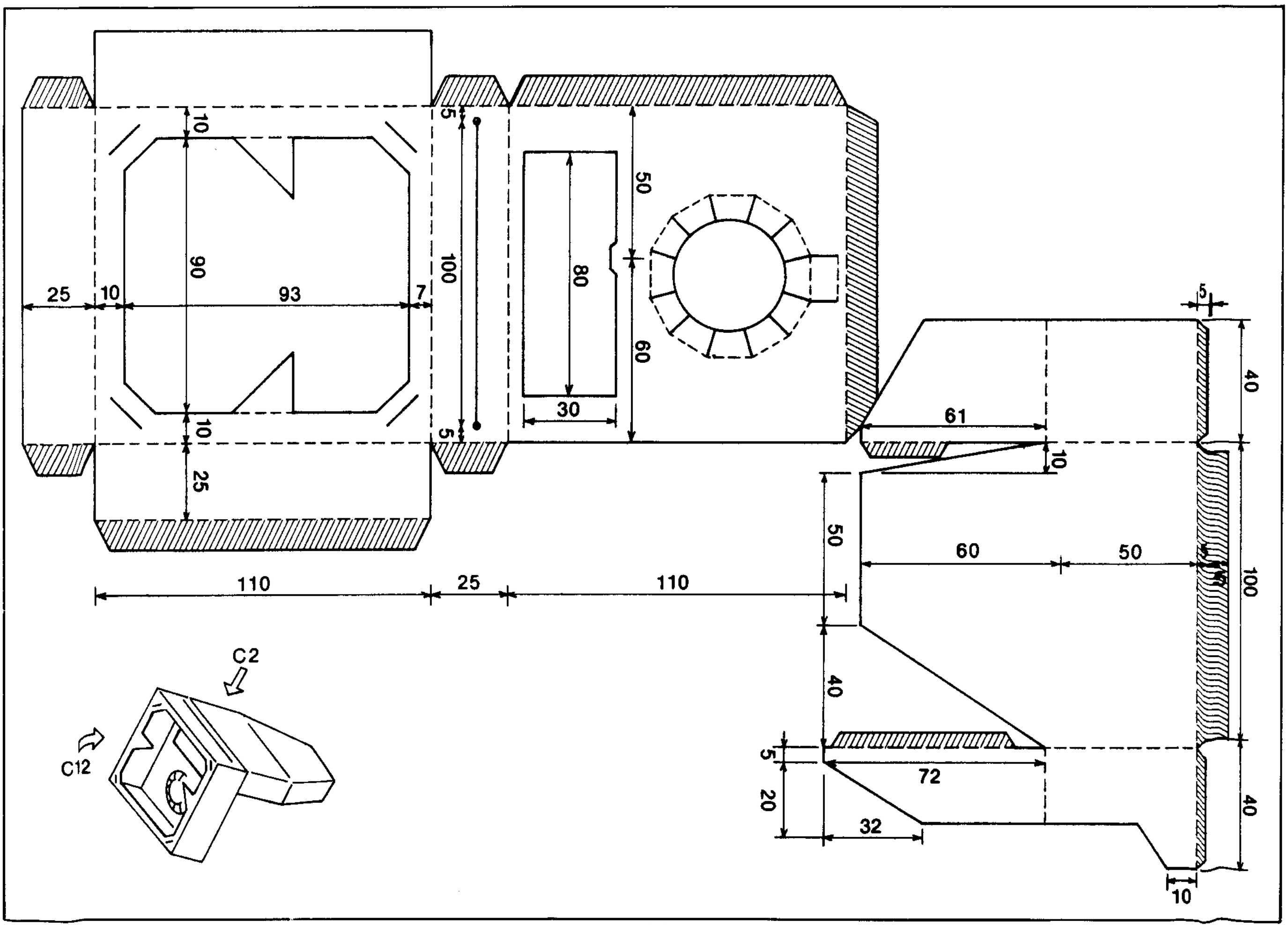

10
90
10
25
25
10
93
7
5
100
5
80
30
50
60
110
25
110
5
40
61
10
50
60
50
100
40
5
20
72
32
40
10
C2
C12

Fig.C24

Note 2:
(1) Aim the camera at a sunny source (window, etc.).
(2) Incoming light must be from an outdoor source only, source and illumination on the sensor must be more than 500Lx, and colour temperature must be within 5000 degrees to 6000 degrees Kelvin. (Refer to Fig. C25)

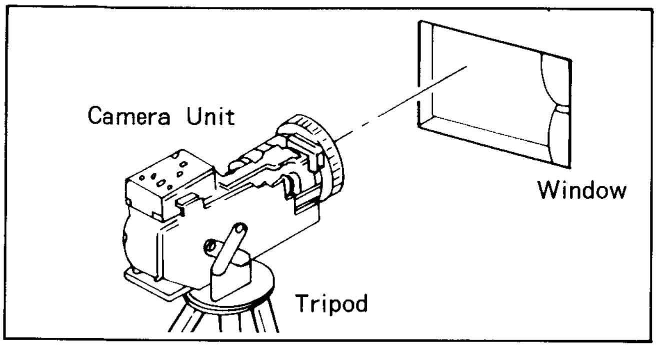


Fig.C25

16. AWB OFFSET ADJUSTMENT WITH OSCILLOSCOPE

TP	ADJ.	IRIS	CHART
TP511, TP512 TP513	VR530 VR531		WHITE CHART
M.EQ.		**SPEC.**	
OSCILLOSCOPE		0 +- 0.1V	

(1) White balance selector should be set for "INDOOR".
(2) Aim the camera to white chart.
(3) Confirm that any GND probe of oscilloscope is not connected to GND.
(4) Connect the GND probe to TP511. And hot probe to TP512. Set the oscilloscope to DC range.
(5) Adjust the VR530 so that voltage become 0 +- 0.1V.
(6) Connect the GND probe to TP511 and hot probe to TP513.
(7) Adjust the VR531 so that voltage become 0 +- 0.1V.

WITH VECTOR SCOPE

TP	ADJ.	IRIS	CHART
VIDEO OUT	VR530 VR531		WHITE CHART
M.EQ.		**SPEC.**	
VECTOR SCOPE		VECTORS CENTRE	

(1) Aim the camera at the white chart and focus the lens on the object.
(2) Connect the VECTOR SCOPE to the video output.
(3) Adjust the offset control (VR530, VR531) so that the vector comes to centre as shown below.

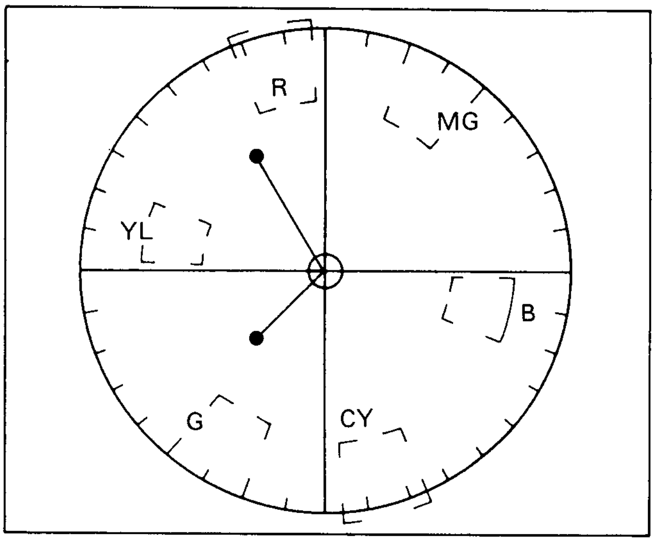


Fig.C26

17. BURST PHASE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUT	VR329	YES	
M. EQ.		**SPEC.**	
VECTOR SCOPE		135 degree ± 2 degree	

Note:
VR329 : Process C.B.A.

(1) Cover the lens with lens cap.
(2) Supply the video out signal to the vectorscope.
(3) Set the vector scope for "NTSC" mode.
(4) Adjust the VR329 so that burst phase become 135 +- 2 degree.

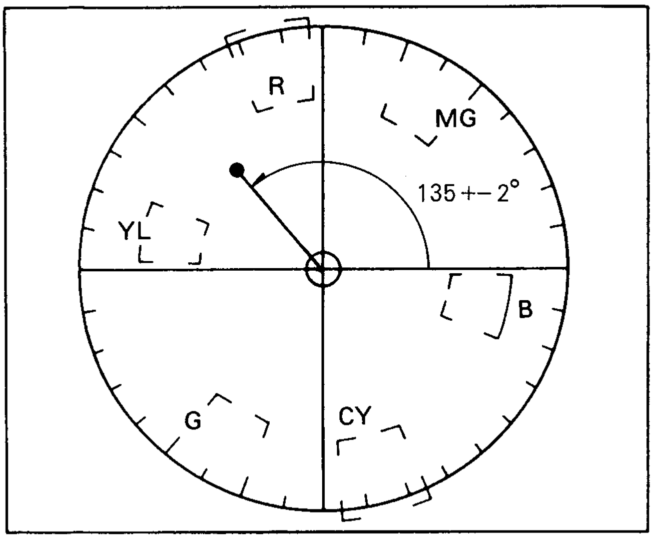


Fig.C27

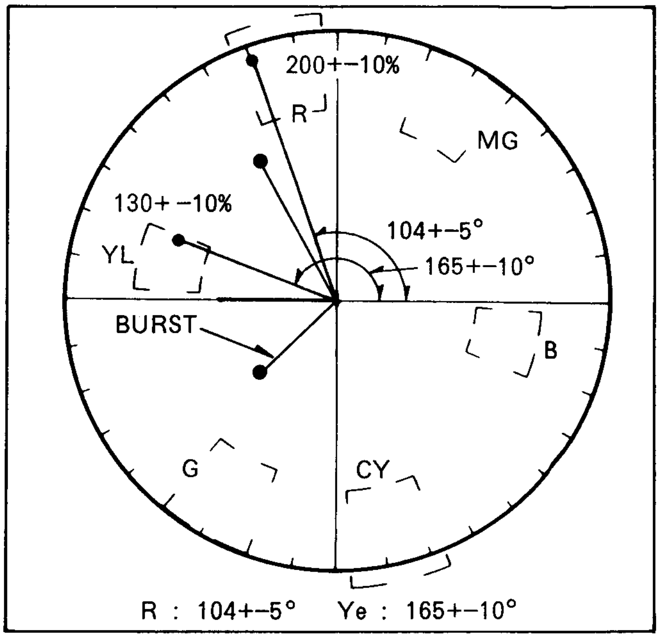
18. COLOUR PHASE AND R-Y/B-Y GAIN ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR310, VR307, VR314, VR313, VR328	NO	COLOUR CHIP CHART

M. EQ.	SPEC.
VECTORSCOPE	Fig.C28

Note:
VR310, VR307, VR314, VR313, VR328 : Process C.B.A

(1) Aim the camera at a Colour Chip Chart.
(2) Set the vector scope to NTSC mode.
(3) Adjust the VR310 so that cracked Red vector comes one.
(4) Set the vector scope to PAL mode.
(5) Connect the jumper wire among TP511, TP512 and TP513 on the Process C.B.A.
(6) Supply the video signal to the vectorscope.
(7) Adjust the Colour Phase Control (VR307 and VR314), the R−Y Gain Control (VR313) and the B−Y Gain Control (VR328) so that the vector of each colour is as shown in Fig. C23.



R : 104+−5° Ye : 165+−10°

Fig.C28

19. HIGH INTENSITY SUPPRESS (HC) ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR309	NO	COLOUR CHART

M. EQ.	SPEC.
TV MONITOR	HALF SIZE (YELLOW) YELLOW COLOUR IS JUST BEFORE CUT OFF

Note:
VR309 : Process C.B.A.

(1) Aim the camera at the colour chart. (colour bar).
(2) Set the horizontal picture frame (H size) to 40usec, and memorize the level of yellow part.
(3) Set the horizontal picture frame to 16usec.
(4) In case that the level of yellow part is more than 50% compared with the yellow level of when horizontal picture frame is 40 usec :
Adjust the VR309 so that the level of yellow becomes 50% as shown in Fig. C30.
(5) In case that the level of yellow part is already less than 50% of when the horizontal picture frame is 40usec:
Adjust the VR309 until just before yellow part begins to disappear.

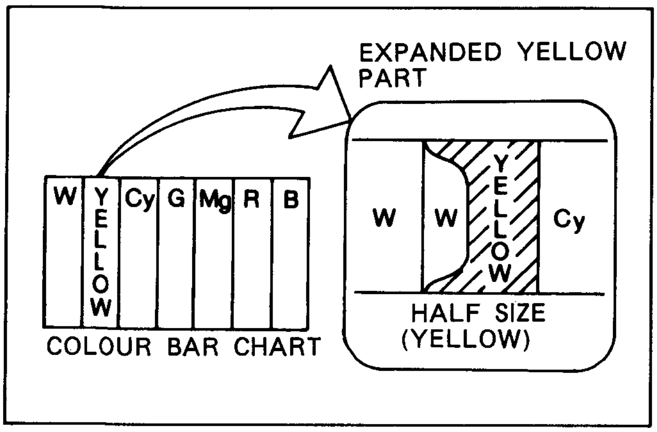

EXPANDED YELLOW PART
W
YELLOW
Cy
G
Mg
R
B
COLOUR BAR CHART
W
W
YELLOW
Cy
HALF SIZE (YELLOW)

Fig.C29

20-1. AWT MODE (OFFSET) ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR525 VR526	NO	WHITE CHART
M. EQ.		**SPEC.**	
VECTORSCOPE		CENTER OF VECTORSCOPE	
OSCILLOSCOPE		WAVEFORM IS MINIMIZED	

Note:
VR525,VR526 : Process C.B.A.

WITH VECTORSCOPE

(1) Set the White balance selector for "AUTO" position.
(2) Aim the camera at the white chart.
(3) Supply the video signal to the vectorscope.
(4) Connect the jumper wire among TP511, TP512 and TP513 to cut the R–Y, B–Y feed back line.
(5) Set the diffusion plate on to surface of AWT sensor and taping around sensor with black tape so that any light is not entered to sensor from the gap between sensor and diffusion plate.
(6) Adjust the VR525 and VR526 so that the colour vectors move to centre of screen on vector scope. (Refer to Fig. C30)

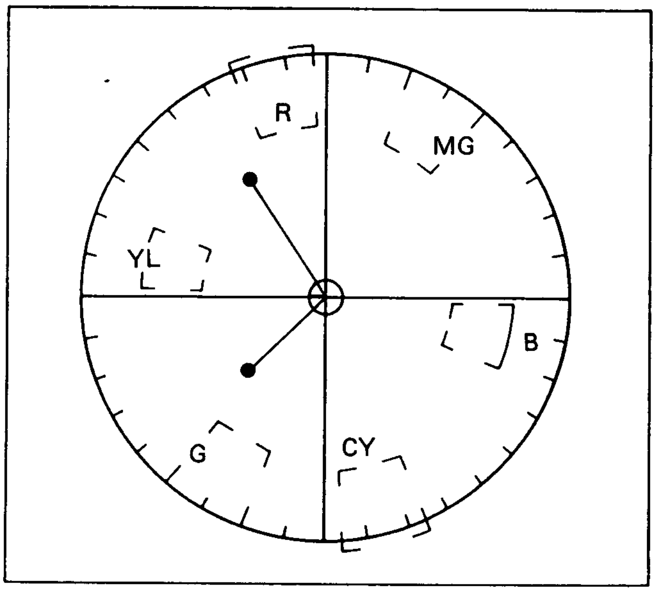


Fig.C30

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR525 and VR526 so that the waveform is minimized.

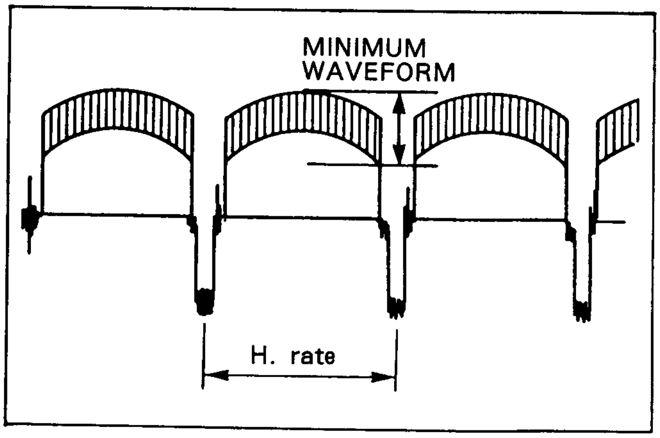

MINIMUM WAVEFORM
H. rate

Fig.C31

20-2. AWT MODE (GAIN) ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR523, VR527	NO	WHITE CHART
M. EQ.	**SPEC.**		
VECTORSCOPE	CENTER OF VECTORSCOPE		
OSCILLOSCOPE	WAVEFORM IS MINIMIZED		

Note:
VR523, VR527 : Process C.B.A.

WITH VECTORSCOPE

(1) Set the White balance selector for "AUTO" position.
(2) Aim the camera at the white chart, Lighting should be a 3200 degrees K Halogen lamp.
(3) Supply the video signal to the vectorscope.
(4) Connect the jumper wire among TP511, TP512 and TP513.
(5) Attach the diffusion plate **(VKW1049)** onto surface of AWT sensor and taping around the sensor with black tape so that any light is not entered to sensor from the gap between sensor and diffusion plate.
(6) Set the fixture (refer to Note 1 of item 15, outdoor white balance Adjustment) to the lens.
(7) Set the colour temperature conversion filter to the fixture as shown in Fig. C32. (VFK0547 to front of lens)

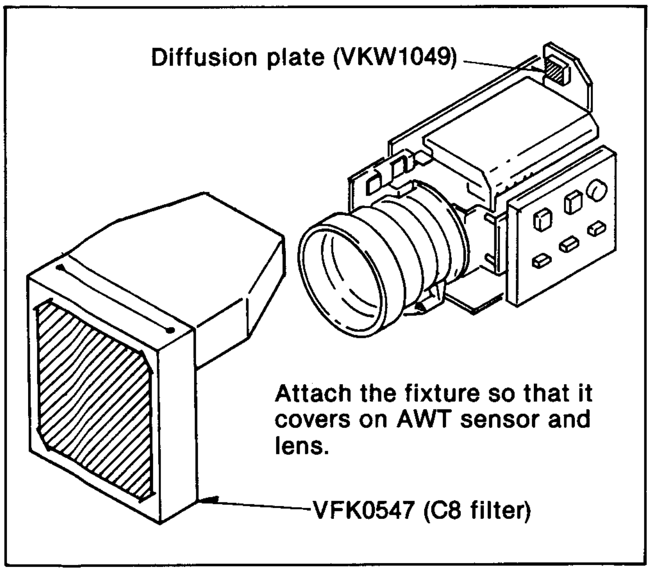

Diffusion plate (VKW1049)
Attach the fixture so that it covers on AWT sensor and lens.
VFK0547 (C8 filter)

Fig.C32

(8) Adjust the VR523 and VR527 so that colour vectors collect at centre.
(9) Next, remove the colour temperature conversion filter with fixture from the lens. If the colour vectors do not collect at centre, adjust the AWT offset adjustment controls (VR525, VR526) so that colour vectors come to centre.
(10) Repeat steps (6)–(9).

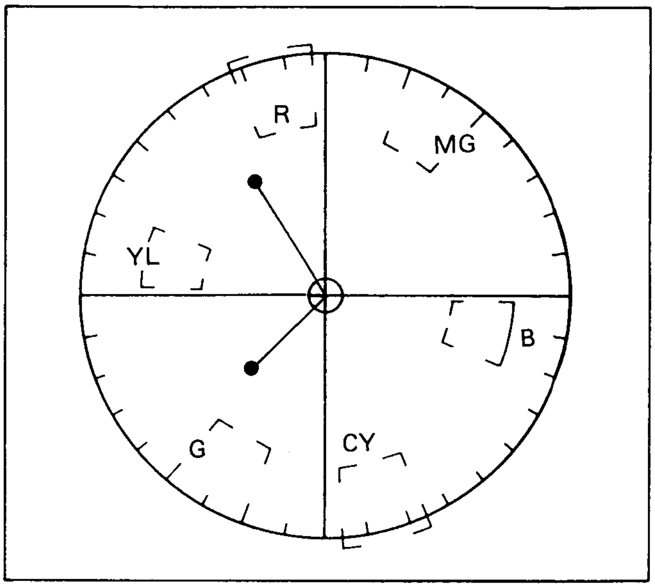


Fig.C33

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR523, VR527, VR525 and VR526 that the waveform is minimized.

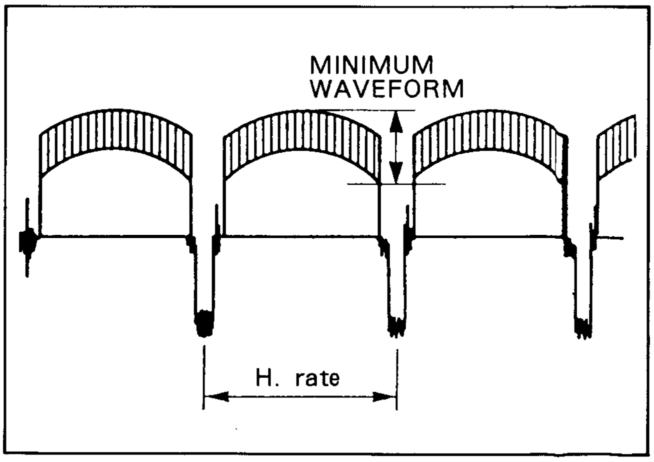

MINIMUM WAVEFORM
H. rate

Fig.C34

AUTO FOCUS SECTION

PREPARATION

The following adjustments are for the Auto Focus Unit.

(1) Camera zoom is positioned at the end of TELE side.

21. AF GATE ADJUSTMENT

TP	ADJ.	IRIS CAP	CHART
TP702 TP703	C703	NO	

M. EQ.	SPEC.
OSCILLOSCOPE	T = 9.6 +- 0.4u-sec.

Note:
TP702, TP703, C703 : AF C.B.A.

(1) Set the AF Gate Control (C703) as shown in Fig. C35.

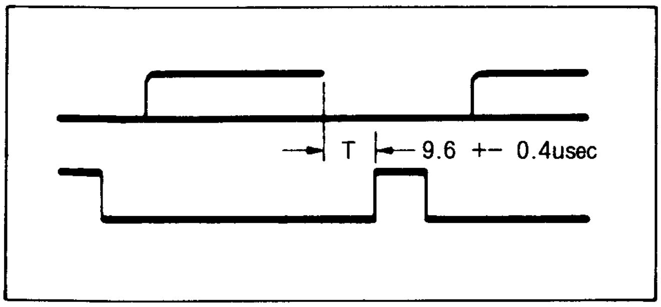


Fig.C35

22. BIMOLF GAIN CONTROL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP704	VR703	YES	

M. EQ.	SPEC.
OSCILLOSCOPE	A = 11V +- 0.5Vp-p

Note:
TP704, VR703 : AF C.B.A.

(1) Set the Focus Switch to the MANUAL position.
(2) Cover the camera lens with the lens cap.
(3) Connect the scope to the TP704.
(4) Adjust the Bimolf Gain Control (VR703) so that the signal level (A) is 11V +- 0.5Vp-p.

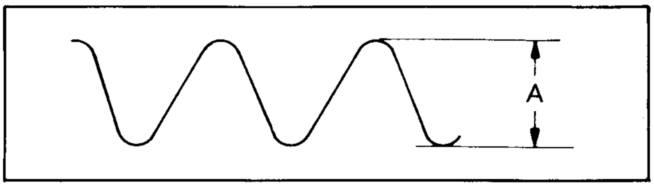


Fig.C36

23. HALL AMX ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP518, TP516 TP521, TP520	VR701 VR702	NO	GRAY SCALE CHART

M. EQ.	SPEC.
D.V.M.	----------------

Note:
TP516, TP518, TP520, TP521 : Process C.B.A.
VR701, VR702 : AF C.B.A.

(1) Connect a jumper wire between TP516 and TP521 to close Iris.
(2) Adjust the HALL AMP Control (VR701) so that the voltage level at TP518 is 1.74V +- 0.02V.
(3) Disconnect the jumper wire between TP516 and TP521.
(4) Next, connect a jumper wire between TP516 and TP520 to open the Iris.
(5) Adjust the HALL AMP Control (VR702) so that the voltage Level of TP518 is 3.72V +- 0.05V.
(6) Disconnect the jumper wire between TP516 and TP520.
(7) Next, confirm the voltage level at TP518 by connecting a jumper wire between TP516 and TP521.
(8) If the voltage level at TP518 is not 1.74V +- 0.02V, repeat steps (1) – (6).

24. AF VH FREQUENCY ADJUSTMENT

TP	ADJ.	IRIS CAP	CHART
TP705	C737	NO	WHITE/GRAY CHART

M. EQ.	SPEC.
OSCILLOSCOPE	A = 2.80V +- 0.05V DC-RANGE

Note:
TP705, TP710 : AF C.B.A.
TP516, TP520 : Process C.B.A.
ZOOM : TELE SIDE
Focus : AUTO

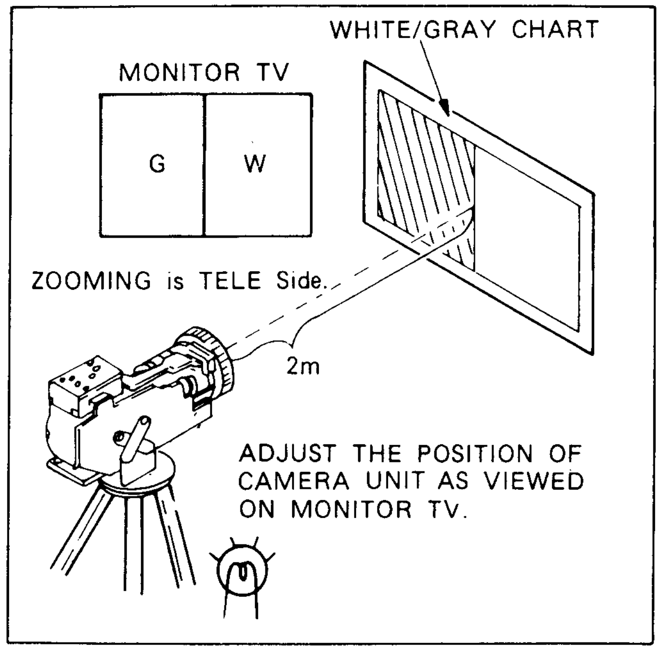

WHITE/GRAY CHART
MONITOR TV
G
W
ZOOMING is TELE Side.
2m
ADJUST THE POSITION OF CAMERA UNIT AS VIEWED ON MONITOR TV.

Fig.C37

(1) Connect a jumper between TP516 and TP520 to open the Iris.
(2) Aim the camera at the white/gray chart that was attached to previous service manual of Movie Camera.
(3) Set the lighting condition so that voltage at TP710 becomes 180mV +- 10mVp-p as shown below.

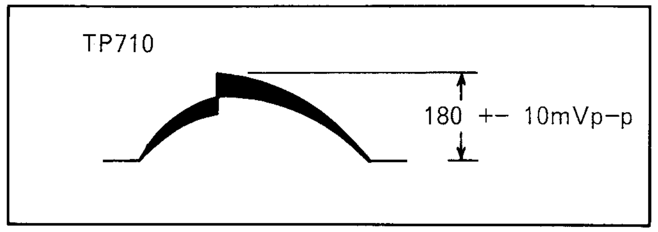


Fig.C38

(4) Adjust the VH frequency level control (C737) so that DC level at TP705 becomes 2.8V +- 0.05V as shown below.

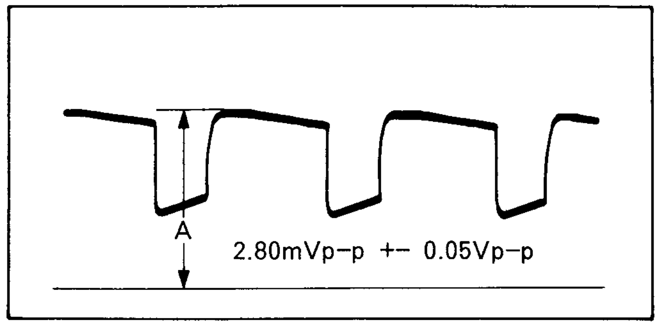


Fig.C39

2-4-2. ELECTRICAL ADJUSTMENT FOR E.V.F. SECTION

PREPARATION

The following adjustments are for Electronic Viewfinder.

(1) Connect the Viewfinder plug to the E.V.F. connector on the unit.
(2) The camera circuit must be completely aligned before viewfinder adjustments are made.

1. H-OSC ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
Pin 6 of P901	VR902	NO	BALL CHART
M. EQ.		**SPEC.**	
FREQUENCY COUNTER		15.9KHz +- 0.1KHz	

Note:
P901, VR902 : E.V.F. C.B.A.

(1) Connect the scope to Pin6 of P901, use DC.
(2) Adjust the H-OSC (VR902) so that the frequency is 15.9 +- 0.1KHz.

2. CENTERING ADJUSTMENT

(1) Aim the camera at the registration chart.
(2) Adjust the Deflection Yoke Centering Magnets by turning them so that the picture on monitor TV is centered.

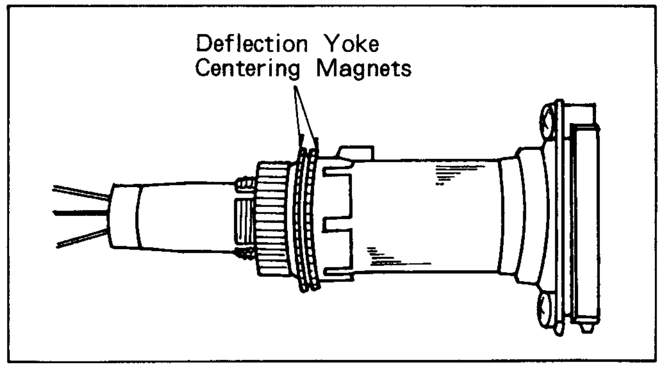

Deflection Yoke Centering Magnets

Fig.C40

3. FOCUS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR904	NO	BALL CHART
M. EQ.		**SPEC.**	
VIEWFINDER		BEST RESOLUTION	

Note:
VR904 : E.V.F. C.B.A.

(1) Aim the camera at the Ball chart.
(2) Adjust the focus control (VR904) for best resolution in the viewfinder.

4. V. SIZE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR901	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
VIEWFINDER		VERTICAL SIZE IS FIXED.	

Note:
VR901 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust the Vertical Size (VR901) so the Vertical Size is correct and the picture does not roll as shown in Fig. C41.

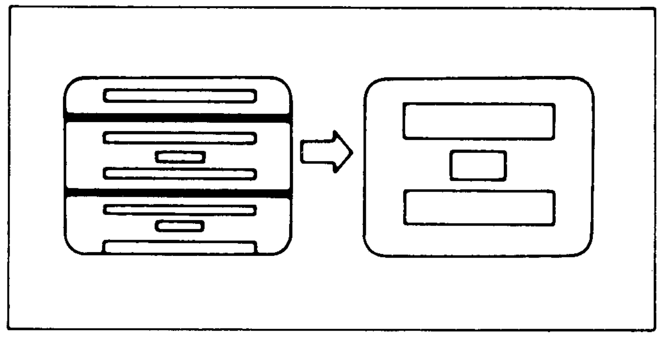


Fig.C41

5. BRIGHTNESS ADJUSTMENT

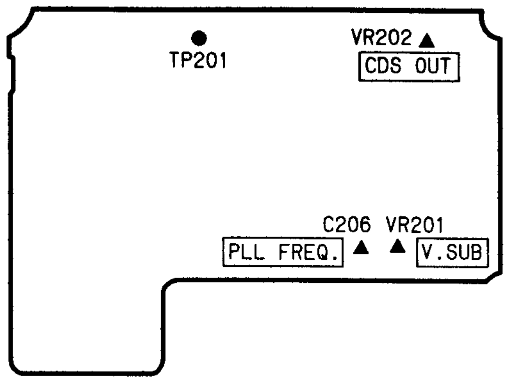
TP	ADJ.	LENS CAP	CHART
	VR905	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
VIEWFINDER		NATURAL GRADATION	

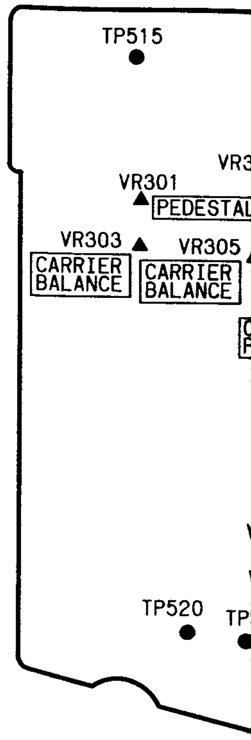
Note:
VR905 : EVF C.B.A.

(1) Aim the camera at gray scale chart.
(2) Adjust the brightness control (VR905) so that the black and white bars in the EVF screen are the same as they are in the monitor TV screen.

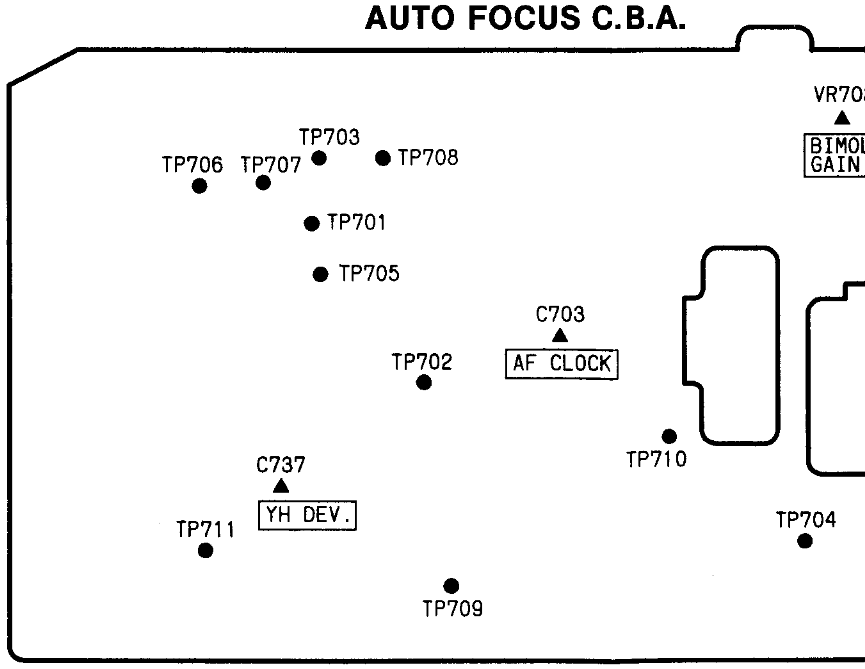
LOCATION OF T

SENSOR C.B.A.


TP201
VR202
CDS OUT
C206
VR201
PLL FREQ.
V.SUB


TP515
VR301
PEDESTAL
VR303
VR305
CARRIER BALANCE
CARRIER BALANCE
TP520

AUTO FOCUS C.B.A.


TP703
TP706
TP707
TP708
TP701
TP705
C703
AF CLOCK
TP702
TP710
C737
YH DEV.
TP711
TP709
TP704
GAIN

IENT FOR

re for Electronic

ıg to the E.V.F.

completely aligned
s are made.

CHART
BALL CHART
PEC.
z +- 0.1KHz

P901, use DC.
02) so that the

ration chart.
Centering Magnets
t the picture on

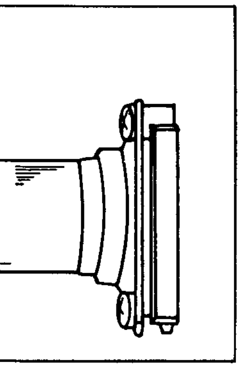


CHART
BALL CHART
SPEC.
ESOLUTION

Note:
VR904 : E.V.F. C.B.A.

(1) Aim the camera at the Ball chart.
(2) Adjust the focus control (VR904) for best resolution in the viewfinder.

4. V. SIZE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR901	NO	GRAY SCALE CHART
M. EQ.	SPEC.		
VIEWFINDER	VERTICAL SIZE IS FIXED.		

Note:
VR901 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust the Vertical Size (VR901) so the Vertical Size is correct and the picture does not roll as shown in Fig. C41.

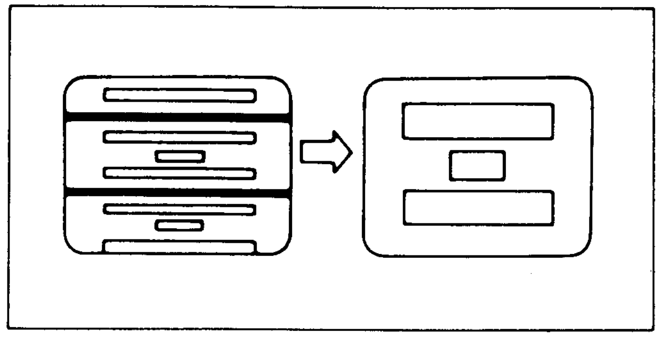


Fig.C41

5. BRIGHTNESS ADJUSTMENT

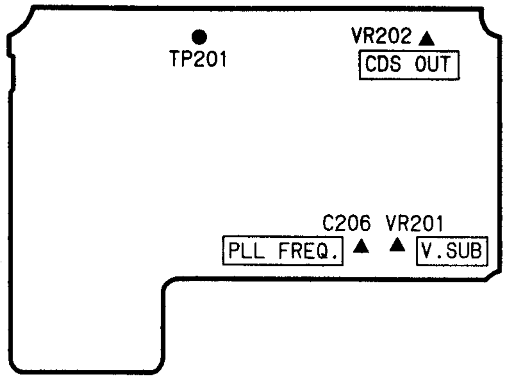
TP	ADJ.	LENS CAP	CHART
	VR905	NO	GRAY SCALE CHART
M. EQ.	SPEC.		
VIEWFINDER	NATURAL GRADATION		

Note:
VR905 : EVF C.B.A.

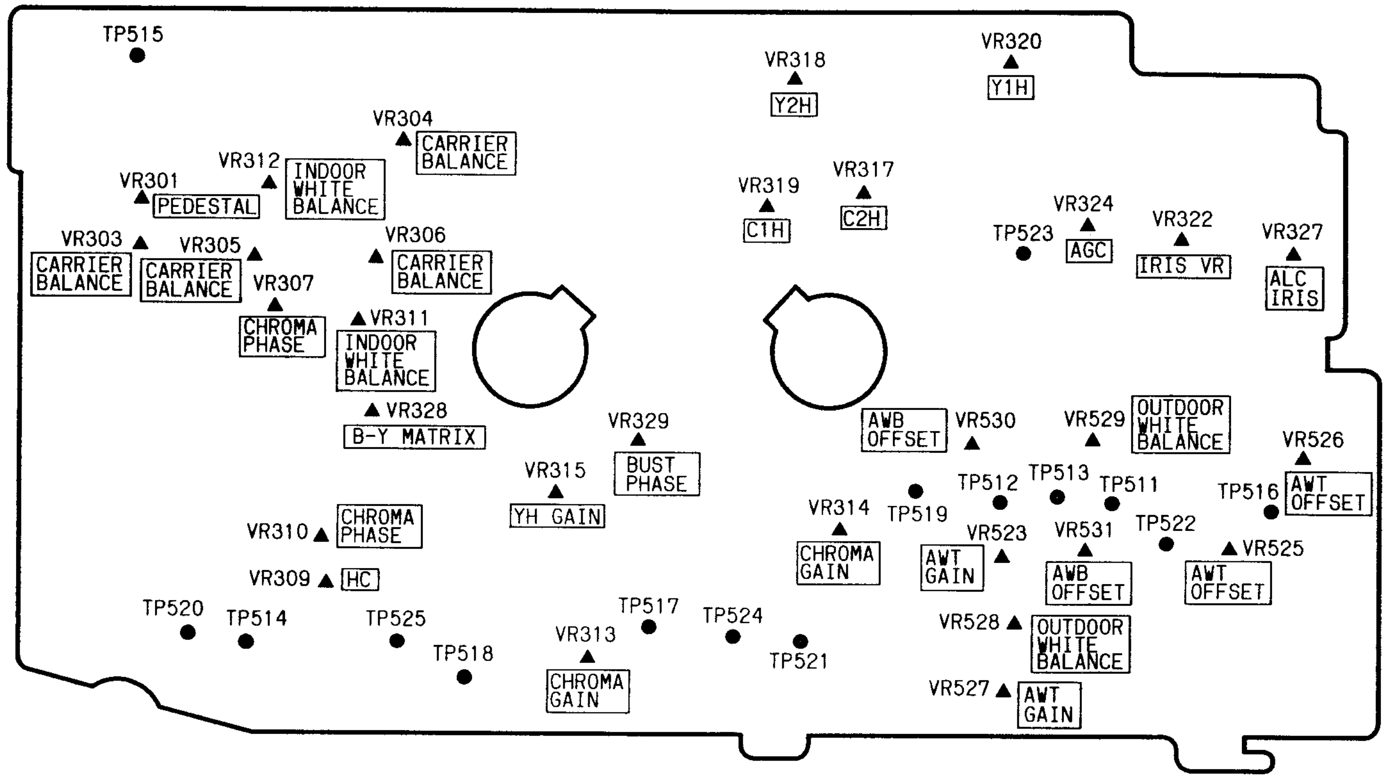
(1) Aim the camera at gray scale chart.
(2) Adjust the brightness control (VR905) so that the black and white bars in the EVF screen are the same as they are in the monitor TV screen.

LOCATION OF TEST POINTS & CONTROLS (1)

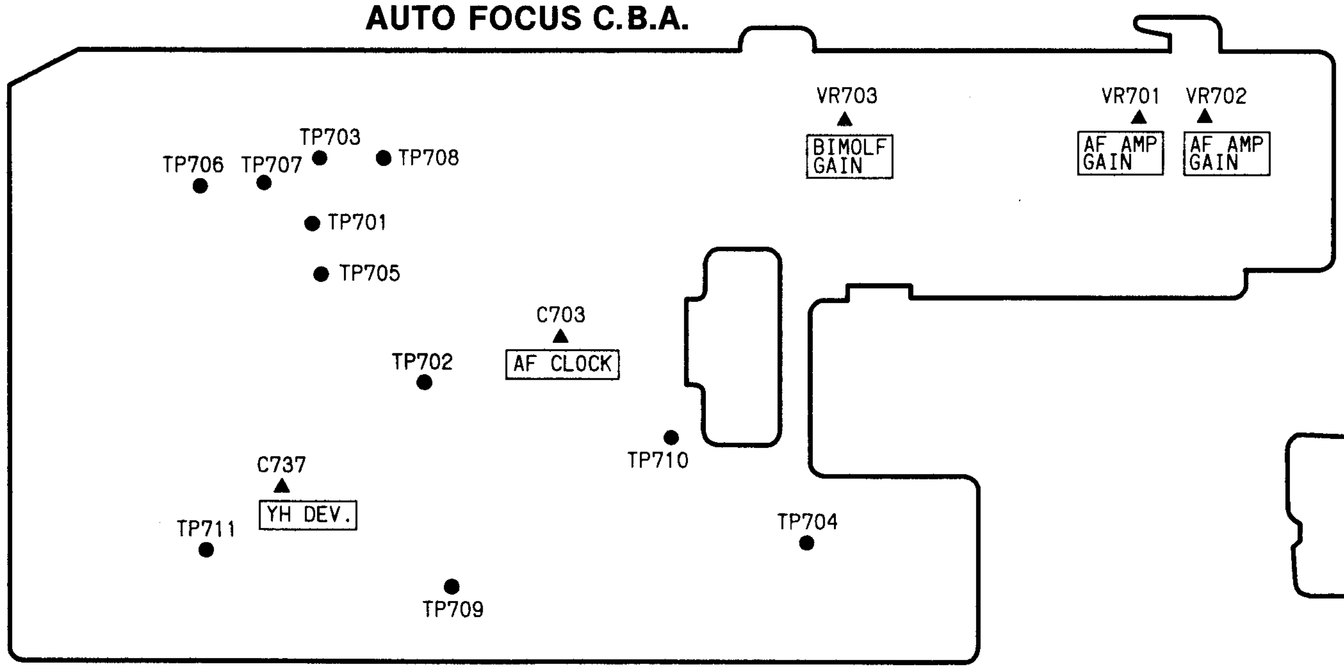
SENSOR C.B.A.


TP201
VR202
CDS OUT
C206
VR201
PLL FREQ.
V.SUB

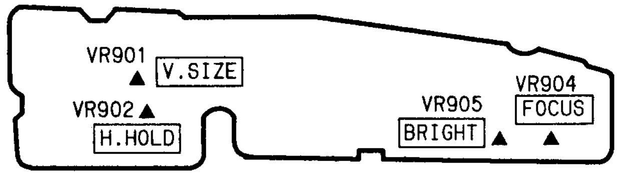
PROCESS C.B.A.


TP515
VR318
Y2H
VR320
Y1H
VR304
CARRIER BALANCE
VR312
INDOOR WHITE BALANCE
VR301
PEDESTAL
VR303
CARRIER BALANCE
VR305
CARRIER BALANCE
VR307
CHROMA PHASE
VR306
CARRIER BALANCE
VR311
INDOOR WHITE BALANCE
VR328
B-Y MATRIX
VR319
CTH
VR317
C2H
TP523
VR324
AGC
VR322
IRIS VR
VR327
ALC IRIS
VR329
BUST PHASE
VR315
YH GAIN
VR310
CHROMA PHASE
VR309
HC
AWB OFFSET
VR530
VR529
OUTDOOR WHITE BALANCE
VR526
TP516
AWT OFFSET
VR314
TP519
TP512
TP513
TP511
CHROMA GAIN
VR523
AWT GAIN
VR531
AWB OFFSET
TP522
VR525
AWT OFFSET
TP520
TP514
TP525
TP518
VR313
CHROMA GAIN
TP517
TP524
TP521
VR528
OUTDOOR WHITE BALANCE
VR527
AWT GAIN

AUTO FOCUS C.B.A.

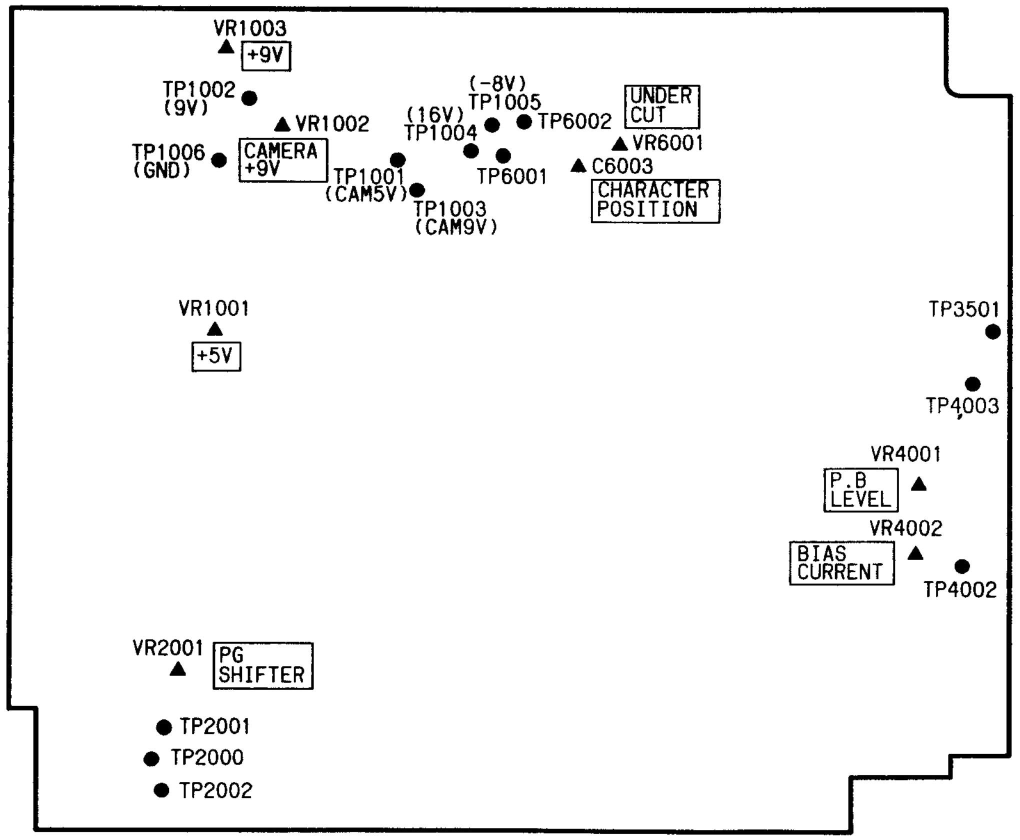

TP703
TP706
TP707
TP708
TP701
TP705
VR703
BIMOLF GAIN
VR701
AF AMP GAIN
VR702
AF AMP GAIN
C703
AF CLOCK
TP702
TP710
C737
YH DEV.
TP711
TP704
TP709

E.V.F. C.B.A.


VR901
V.SIZE
VR902
H.HOLD
VR905
BRIGHT
VR904
FOCUS

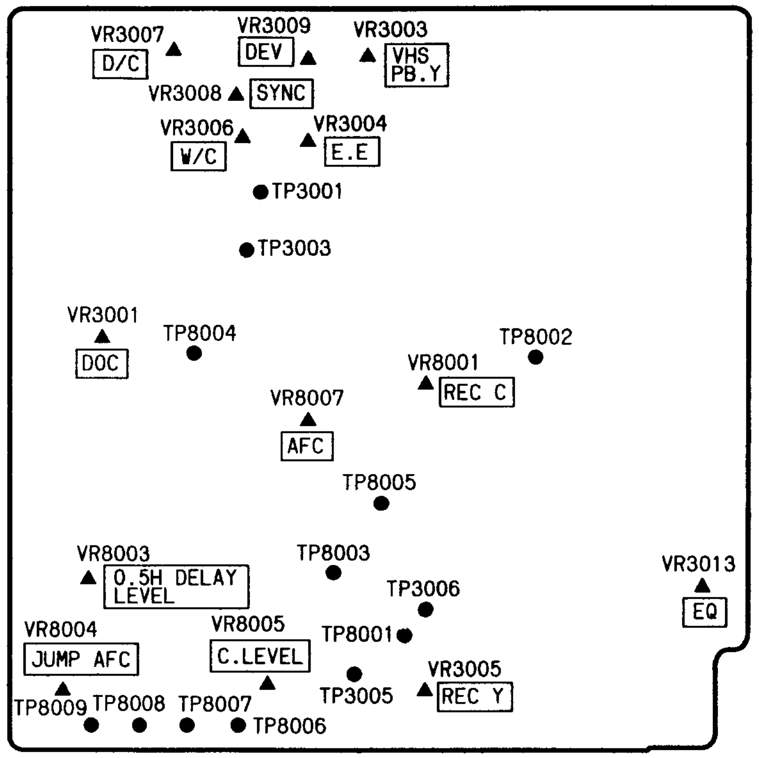
LOCATION OF TEST POINTS & CONTROLS (2)

MAIN C.B.A.


VR1003
+9V
TP1002 (9V)
VR1002
(-8V) TP1005
(16V) TP1004
TP6002
UNDER CUT
VR6001
TP1006 (GND)
CAMERA +9V
TP1001 (CAM5V)
TP6001
C6003
CHARACTER POSITION
TP1003 (CAM9V)
VR1001
+5V
TP3501
TP4003
VR4001
P.B LEVEL
VR4002
BIAS CURRENT
TP4002
VR2001
PG SHIFTER
TP2001
TP2000
TP2002

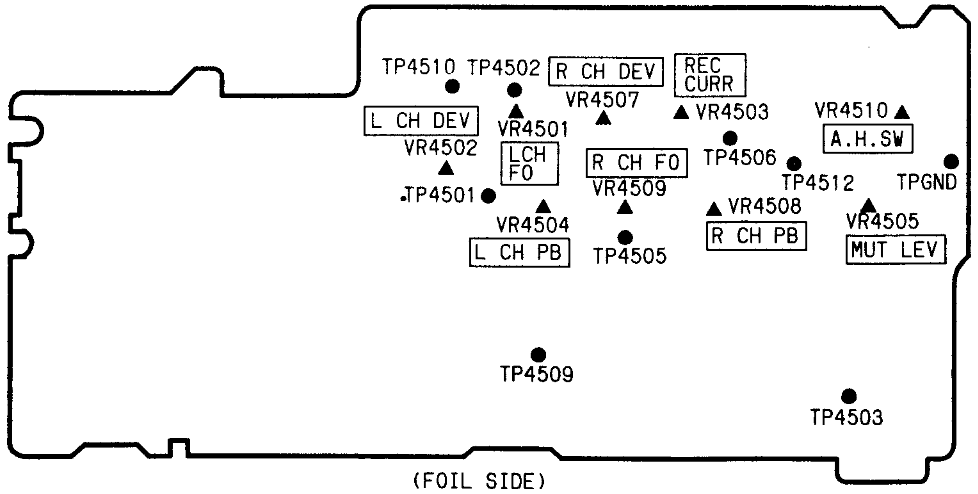
(FOIL SIDE)

LUMINANCE & CHROMINANCE PACK C.B.A.


VR3007
D/C
VR3009
DEV
VR3003
VHS PB.Y
VR3008
SYNC
VR3006
Y/C
VR3004
E.E
TP3001
TP3003
VR3001
DOC
TP8004
TP8002
VR8001
REC C
VR8007
AFC
TP8005
VR8003
0.5H DELAY LEVEL
TP8003
TP3006
VR3013
EQ
VR8004
JUMP AFC
VR8005
C.LEVEL
TP8001
VR3005
REC Y
TP3005
TP8009
TP8008
TP8007
TP8006

(FOIL SIDE)

Hi-Fi AUDIO C.B.A.


TP4510
TP4502
R CH DEV
REC CURR
L CH DEV
VR4507
VR4503
VR4510
VR4501
A.H.SW
VR4502
LCH FO
R CH FO
TP4506
VR4509
TP4512
TPGND
TP4501
VR4508
VR4504
VR4505
L CH PB
TP4505
R CH PB
MUT LEV
TP4509
TP4503

(FOIL SIDE)

2-4-3. ELECTRICAL ADJUSTMENT FOR VTR SECTION

TEST EQUIPMENT AND TOOLS

The following equipments are required for adjustment of the VHS-C Movie NV-MC30.

1. VTVM (Vacuum Tube Volt Meter)
   DVM (Digital Volt Meter)
   Voltage Range : 0.01~50V
2. Dual Trace Oscilloscope
   Voltage Range : 0.06~50V/div
   Frequency Range : 0~50MHz
   Probe : 10:1 or 1:1
3. Frequency counter
   Frequency Range : 0~10MHz
4. Signal Generator (Sinewave)
   Frequency Range : 0~10MHz
5. Video Sweep Generator
   Frequency Range : 0~10MHz
6. Colour Monitor TV
7. Plastic Tip Driver
8. VHS-C Alignment Tape (VFM8180H8PF)
9. VHS-C Blank Tape
10. Pattern Generator

PREPARATION

1. Remove the casing panels.
   (Refer to the disassemble method)
2. Connect the Y/C separator (VFK0304) to the extension cable (VFK0430) with Y/C separator connection cable (VFKS0074) and connect this extension cable (VFK0430) to connector P1002 on Main C.B.A.
3. Supply the video signal to the video circuit by using the Y/C separator (VFK0304) as shown in Fig. E1.
4. Supply the audio signal to audio circuit through the External Microphone Socket.

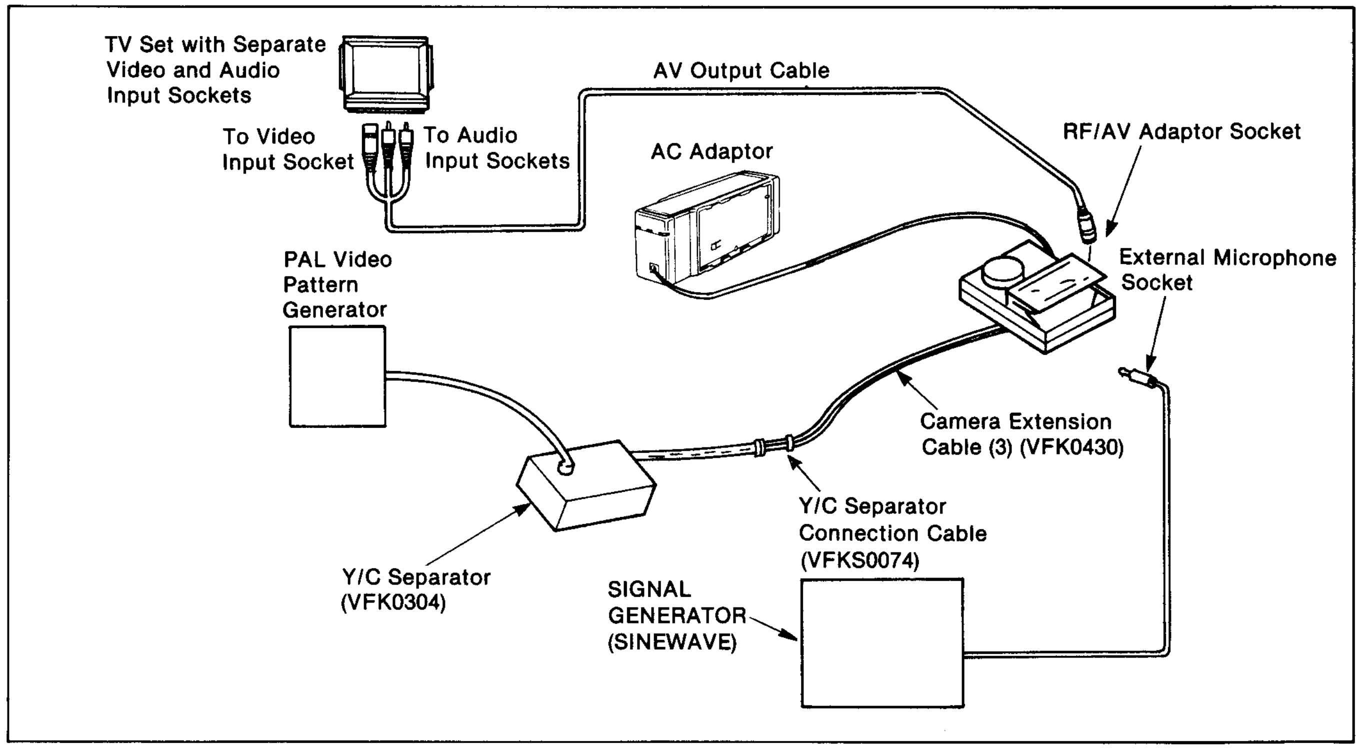
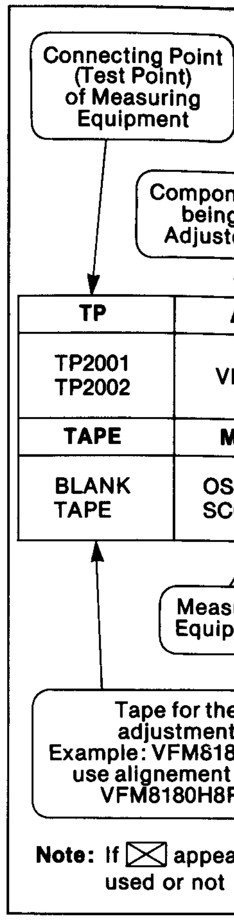

TV Set with Separate Video and Audio Input Sockets
AV Output Cable
To Video Input Socket
To Audio Input Sockets
AC Adaptor
RF/AV Adaptor Socket
PAL Video Pattern Generator
External Microphone Socket
Camera Extension Cable (3) (VFK0430)
Y/C Separator Connection Cable (VFKS0074)
Y/C Separator (VFK0304)
SIGNAL GENERATOR (SINEWAVE)

Fig.E1

HOW TO READ T
PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Compor
being
Adjust
TP
TP2001
TP2002
VI
TAPE
M
BLANK TAPE
OS
SC
Meas
Equip
Tape for the adjustment
Example: VFM818
use alignement
VFM8180H8F

Note: If ☒ appea
used or not

FOR TRIGGERING

To trigger the
point is used.

H. rate : J3501-1
V. rate : TP2001 (

Note:
Before the el
as following
instructions in each

1. Tape Speed Sele
2. Tracking Contr

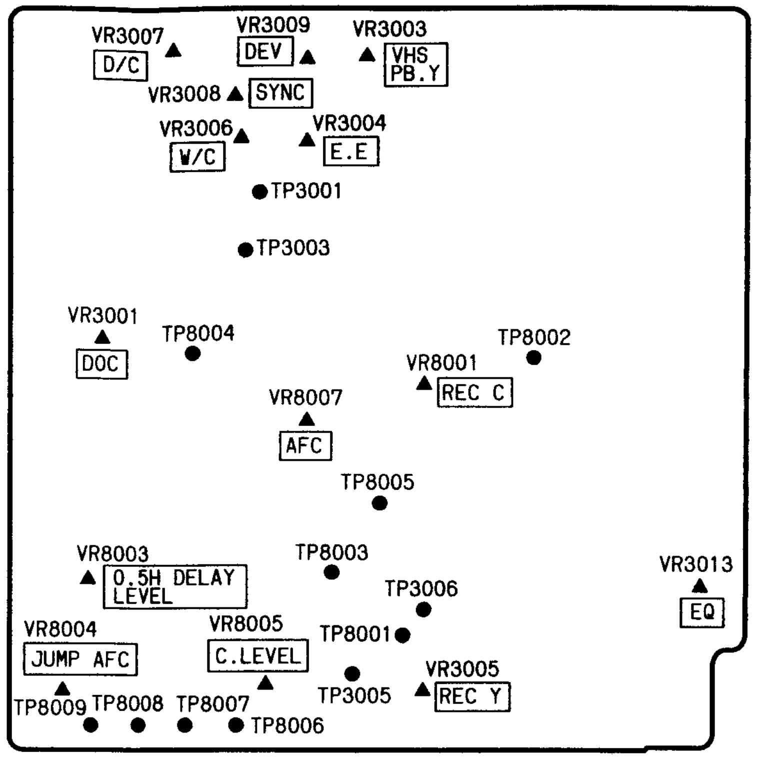
POWER SECTION

1. REG. 5V ADJUS

TP	A
TP1001	VF
TAPE	M
BLANK TAPE	D.

INTS & CONTROLS (2)

LUMINANCE & CHROMINANCE PACK C.B.A.


VR3007
D/C
VR3009
DEV
VR3003
VHS PB.Y
VR3008
SYNC
VR3006
W/C
VR3004
E.E
TP3001
TP3003
VR3001
DOC
TP8004
TP8002
VR8001
REC C
VR8007
AFC
TP8005
VR8003
0.5H DELAY LEVEL
TP8003
TP3006
VR3013
EQ
VR8004
JUMP AFC
VR8005
C.LEVEL
TP8001
VR3005
REC Y
TP8009
TP8008
TP8007
TP3005
TP8006

(FOIL SIDE)

2-4-3. ELECTRICAL ADJUSTMENT FOR VTR SECTION

TEST EQUIPMENT AND TOOLS

The following equipments are required for adjustment of the VHS-C Movie NV-MC30.

1. VTVM (Vacuum Tube Volt Meter)
   DVM (Digital Volt Meter)
   Voltage Range : 0.01∼50V
2. Dual Trace Oscilloscope
   Voltage Range : 0.06∼50V/div
   Frequency Range : 0∼50MHz
   Probe : 10:1 or 1:1
3. Frequency counter
   Frequency Range : 0∼10MHz
4. Signal Generator (Sinewave)
   Frequency Range : 0∼10MHz
5. Video Sweep Generator
   Frequency Range : 0∼10MHz
6. Colour Monitor TV
7. Plastic Tip Driver
8. VHS-C Alignment Tape (VFM8180H8PF)
9. VHS-C Blank Tape
10. Pattern Generator

PREPARATION

1. Remove the casing panels.
   (Refer to the disassemble method)
2. Connect the Y/C separator (VFK0304) to the extension cable (VFK0430) with Y/C separator connection cable (VFKS0074) and connect this extension cable (VFK0430) to connector P1002 on Main C.B.A.
3. Supply the video signal to the video circuit by using the Y/C separator (VFK0304) as shown in Fig. E1.
4. Supply the audio signal to audio circuit through the External Microphone Socket.

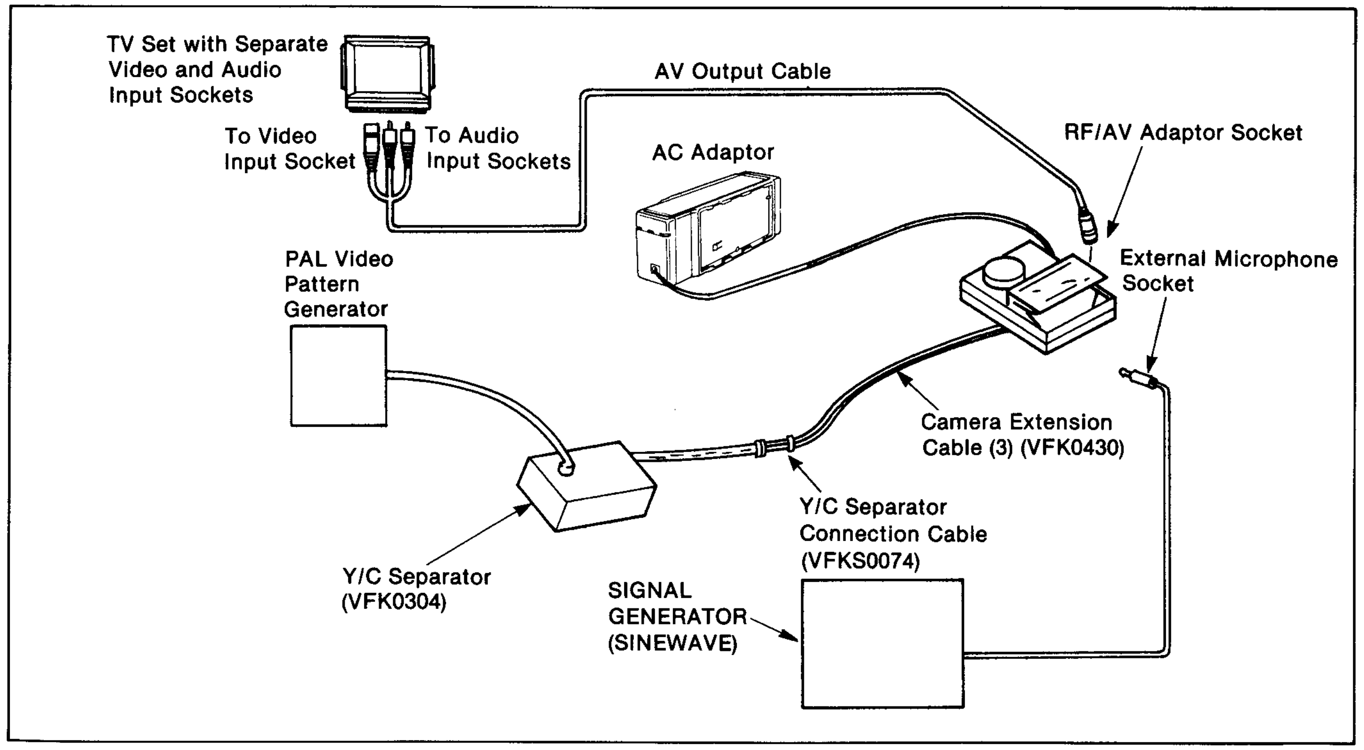
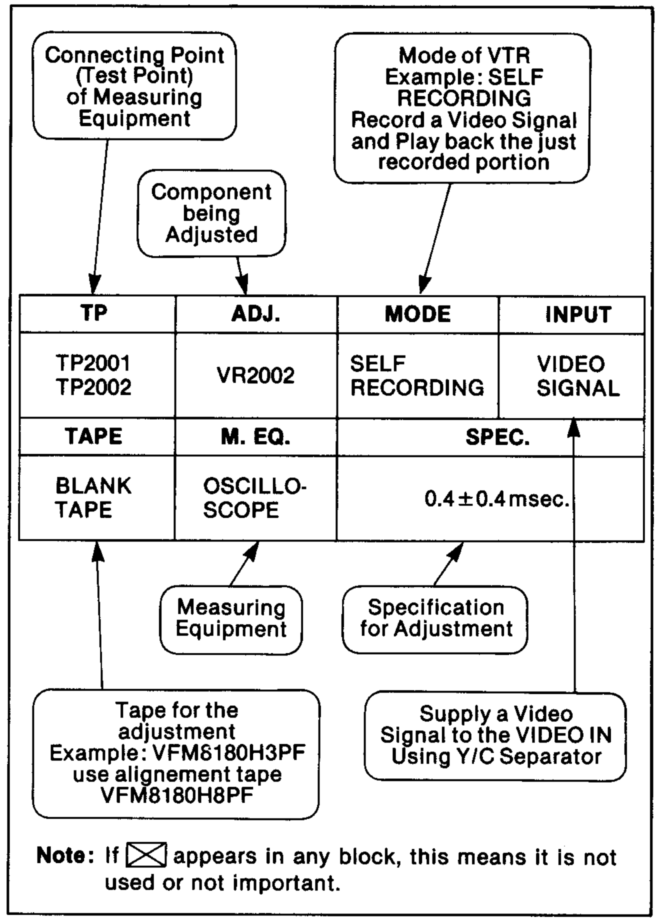

TV Set with Separate Video and Audio Input Sockets
To Video Input Socket
To Audio Input Sockets
AV Output Cable
AC Adaptor
RF/AV Adaptor Socket
External Microphone Socket
PAL Video Pattern Generator
Camera Extension Cable (3) (VFK0430)
Y/C Separator Connection Cable (VFKS0074)
Y/C Separator (VFK0304)
SIGNAL GENERATOR (SINEWAVE)

Fig.E1

HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Mode of VTR Example: SELF RECORDING Record a Video Signal and Play back the just recorded portion
Component being Adjusted
TP
ADJ.
MODE
INPUT
TP2001 TP2002
VR2002
SELF RECORDING
VIDEO SIGNAL
TAPE
M. EQ.
SPEC.
BLANK TAPE
OSCILLO-SCOPE
0.4±0.4msec.
Measuring Equipment
Specification for Adjustment
Tape for the adjustment Example: VFM8180H3PF use alignement tape VFM8180H8PF
Supply a Video Signal to the VIDEO IN Using Y/C Separator

Note: If ☒ appears in any block, this means it is not used or not important.

FOR TRIGGERING OF THE OSCILLOSCOPE

To trigger the Oscilloscope, the following test point is used.

H. rate : J3501-1 (video output)
V. rate : TP2001 (Head Switching signal)

Note:
Before the electrical adjustment, set the Unit as following conditions except for especial instructions in each adjustment item.

1. Tape Speed Selector ... SP position.
2. Tracking Control ... Centre FIX position.

POWER SECTION

1. REG. 5V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1001	VR1001	REC/PLAY	☒
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	4.91±0.025V	

2. REG. 9V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1002	VR1003	CAMERA RECORDING	☒
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	8.2±0.05V	

3. CAMERA REG. 9V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1003	VR1002	REC/PLAY	☒
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	$8.6^{+0.07}_{-0.03}$V	

This adjustment should be always completed after REG. 5V ADJUSTMENT and REG. 9V ADJUSTMENT.

4. UNDER CUT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP6001	VR6001	REC/PLAY	☒
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE/ DC POWER SUPPLY/ D.V.M.	☒	

Note:
Do not connect AC Adaptor, connect a DC Power Supply to pin 2 (+) and pin 1 (−) of p1001, then supply the voltage 8.64 +− 0.05V.

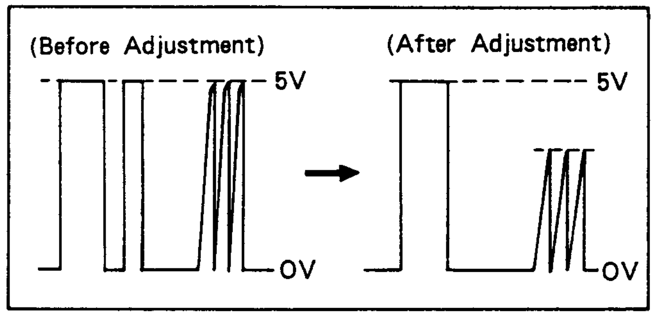


Fig.E2

SERVO SECTION

5. PG SHIFTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2001 J3501-1	VR2001	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE (VFM8180H8PF)	OSCILLO-SCOPE	6.5H±0.5H	

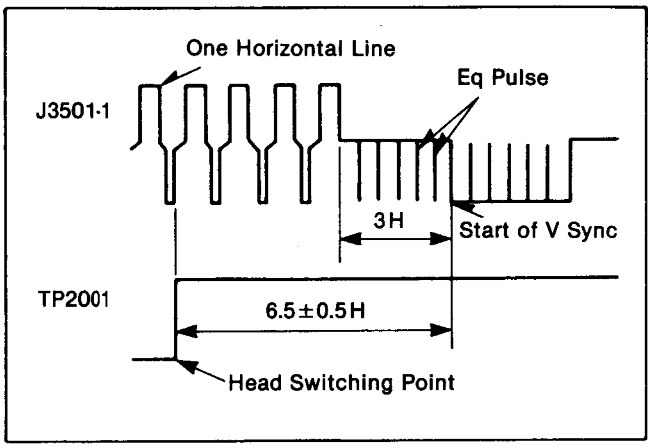


Fig.E3

LUMINANCE & CHROMINANCE SECTION

6. E-E LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
J3501-1	VR3004	STOP	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	A=1.0±0.05Vp-p B=0.6±0.1Vp-p (75Ω Terminated)	

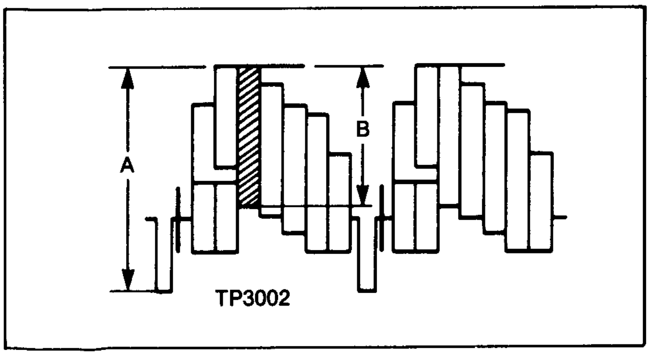


Fig.E4

7. AFC ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP8004	VR8007	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	FREQ. COUNTER	623±15kHz	

1. Connect the jumper wire among TP8002, TP8003 and TP8001 (GND).
2. Connect the frequency counter to TP8004.
3. Adjust the VR8007 so that frequency become 623 +- 15KHz.

8. SYNC TIP FREQUENCY AND DEVIATION ADJUSTMENT

8-1. SYNC TIP FREQUENCY ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3006	VR3008	REC. PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	FREQ. COUNTER	3.8MHz±0.05MHz	

8-2. DEVIATION ADJUSTMENT

TP	ADJ.	MODE	INPUT
P5003-2 (HOT) P5003-1 (GND)	VR3009	REC. PLAY	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE/ FREQ. COUNTER	INNER BEAT IS MAXIMUM	

1. Supply colour bar video signal to video circuit through Y/C separator. (Refer to preparation)
2. Connect a signal generator (sine wave) to TP3006 on Main C.B.A. and set frequency and output level of it as follows.
   Frequency : 4.8MHz +- 0.05MHz
   Output : 0.1Vp-p
3. Connect the oscilloscope to P5003-2 (HOT) and P5003-1 (GND) and it uses a trigger at TP2001.
4. Adjust VR3009 so that inner beat at White portion of colour bar becomes maximum as shown in Fig. E5, Fig. E6.

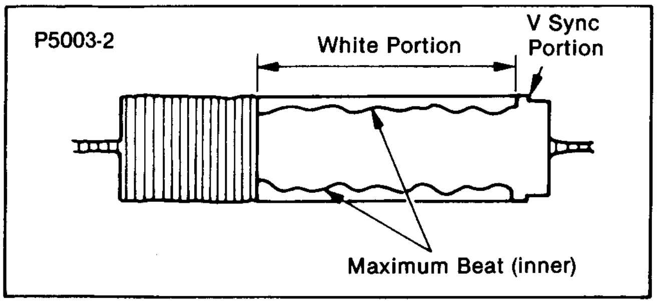

P5003-2
White Portion
V Sync Portion
Maximum Beat (inner)

Fig.E5

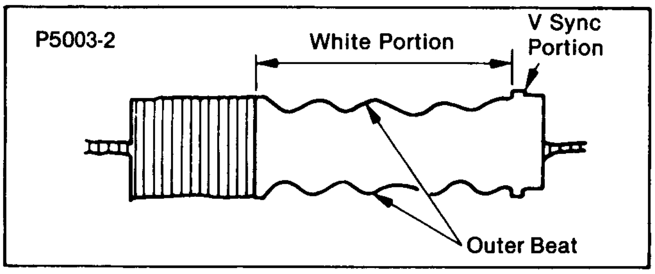

P5003-2
White Portion
V Sync Portion
Outer Beat

Fig.E6

9. WHITE AND DARK CLIP ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3001	VR3006 VR3007	REC (LP)	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	A=188±4% B=156±4%	

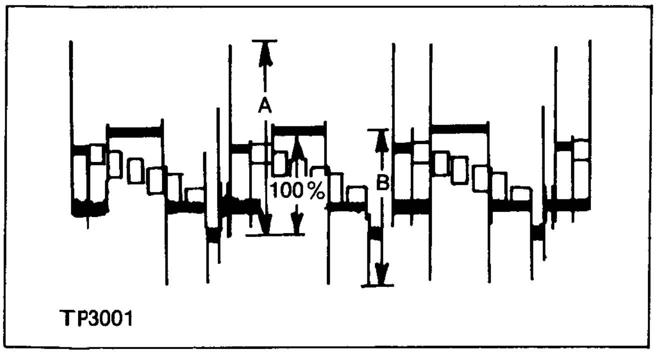

A
100%
B
TP3001

Fig.E7

1. Set the unit to LP Mode and REC.PLAY mode.
2. Supply colour bar signal to video circuit connector through Y/C separator. (refer to preparation).
3. Adjust VR3006, VR3007 so that the level of waveform is shown in Fig. E5.

10. RECORDING CURRENT ADJUSTMENT

10-1. REC CHROMA LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
P5003-2 (HOT) P5003-1 (GND)	VR8001	REC/PLAY (LP)	COLOUR BAR (W/WHITE WINDOW)
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	20±2mVp-p	

1. Set the unit to VHS mode and REC.PLAY with LP mode.
2. Connect the Oscilloscope to P5003−2 (HOT) and P5003−1 (GND).
3. Eliminate Luminance signal by turning VR3005.
4. Adjust' VR8001 so that Chroma level become 20 +− 2mVp−p.

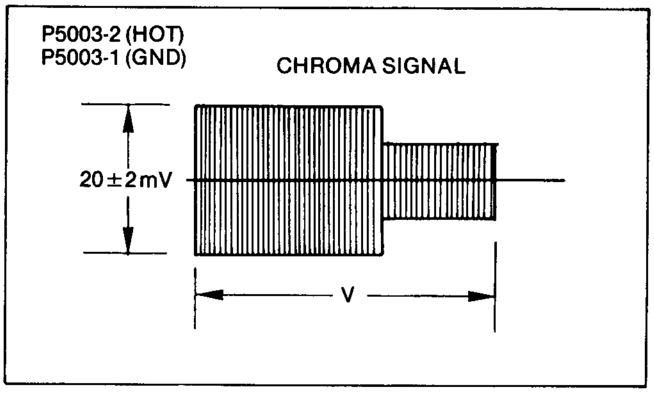

P5003-2 (HOT)
P5003-1 (GND)
CHROMA SIGNAL
20±2mV
V

Fig.E8

10-2. LUMINANCE RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
P5003-2 (HOT) P5003-1 (GND)	VR3005	REC/PLAY (LP)	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	92mV±4mVp-p	

1. Set the unit to VHS mode and REC.PLAY with LP mode.
2. Supply colour bar video signal to video circuit through Y/C separator. (refer to preparation)
3. Adjust VR3005 to 92mV +− 4mVp−p.

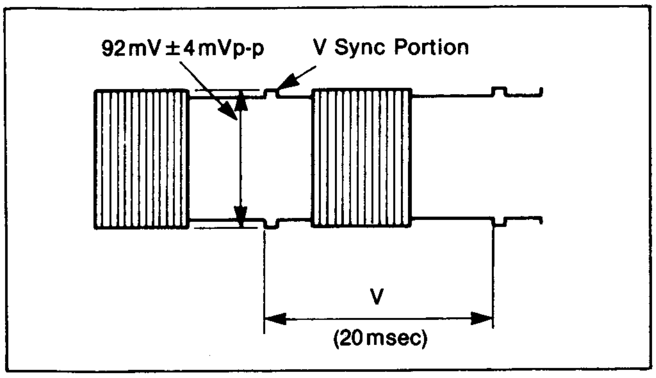

92mV±4mVp-p
V Sync Portion
V
(20msec)

Fig.E9

11. LINE NOISE CANCEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3008	VR3001	SELF RECORDING	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	Less than 16mVp-p	

1. Record the video signal.
2. Connect the oscilloscope to TP3003.
3. Playback just recorded portion.
4. Adjust VR3003 so that level between sync and white 100% become less than 16mVp−p.

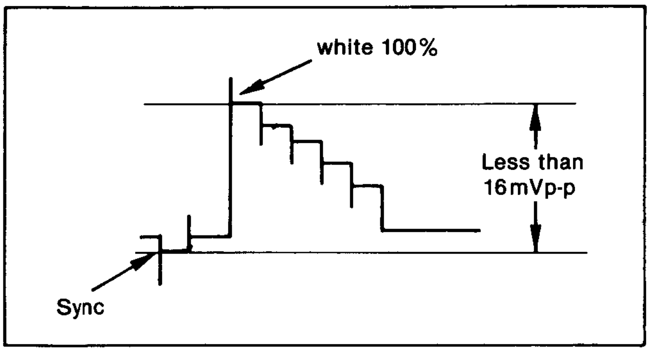

white 100%
Less than 16mVp-p
Sync

Fig.E10

12. VIDEO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
J3501-1	VR3003	SELF RECORDING (VHS MODE)	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLACK TAPE	OSCILLO-SCOPE	A=1.0±0.05Vp-p B=0.5±0.15Vp-p	

1. Record the colour bar signal.
2. Connect the oscilloscope to J3501−1.
3. Adjust the VR3003 so that level become A = 1.0 +− 0.05Vp−p, B = 0.5 +− 0.15Vp−p.

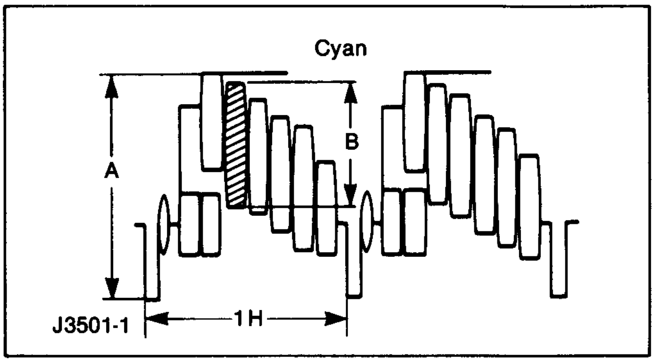

Cyan
A
B
J3501-1
1H

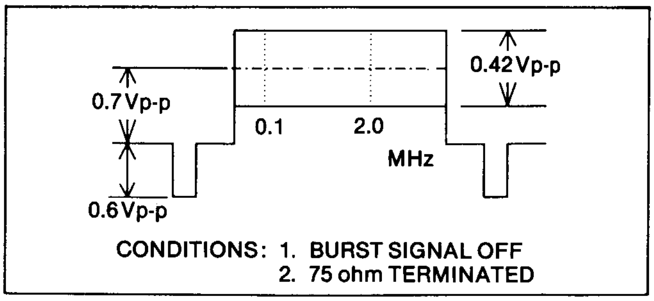
Fig.E11

13. HEAD AMP FREQUENCY RESPONSE ADJUSTMENT

TP	ADJ.	MODE	INPUT
J3501-1	VR3013	SELF RECORDING	VIDEO SWEEP SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	VIDEO SWEEP/ OSCILLO-SCOPE	A: 0±1dB (90∼110%)	

Note: Edit switch must be off.

1. Set the sweep generator output as shown below.


0.7Vp-p
0.6Vp-p
0.42Vp-p
0.1
2.0
MHz

CONDITIONS: 1. BURST SIGNAL OFF
2. 75 ohm TERMINATED

Fig.E12

2. Supply the sweep signal to video circuit through the Y/C separator.
3. Record the sweep signal for a few minutes.
4. Play back the just recorded portion.
5. Adjust VR3013 so that the level at 2MHz (A) becomes within specification comparing with the level at 0.1MHz as shownin Fig.E13.

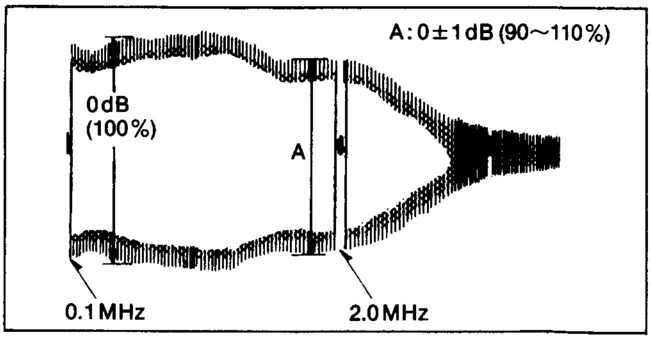

A: 0±1dB (90∼110%)
0dB
(100%)
A
0.1MHz
2.0MHz

Fig.E13

14. 0.5H DELAYED LUMINANCE OUTPUT LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
J3501-1	VR8003	SELF RECORDING	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	FLICKER LEVEL IS MINIMIZED AND LUMI LEVEL IS 1.0±0.1Vp-p.	

1. Supply the colour bar signal to video circuit through Y/C separator.
2. Playback the just recorded portion.
3. Place the unit to "STILL" mode.
4. Adjust VR8003 so that the flicker level is minimized.
5. Confirm the luminance level becomes 1.0 +− 0.1Vp−p.

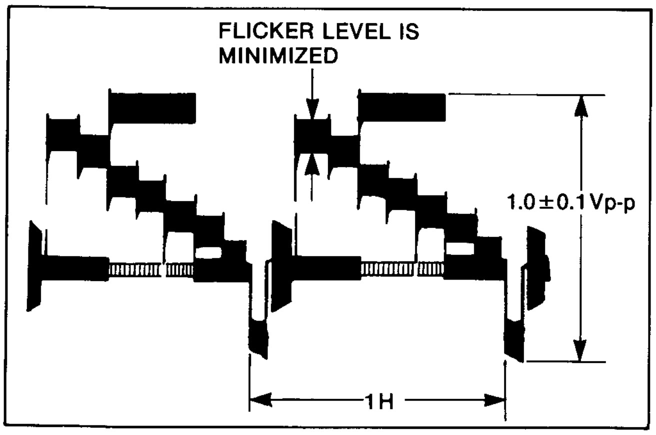


Fig.E14

15. 0.5H DELAYED CHROMINANCE OUTPUT LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP8011	VR8002	SELF RECORDING	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	CYAN LEVEL=1.0±0.15Vp-p	

1. Supply the colour bar signal to video circuit through Y/C separator.
2. Playback the just recorded portion.
3. Adjust VR8002 so that the cyan level is 1.0 +− 0.15Vp−p.

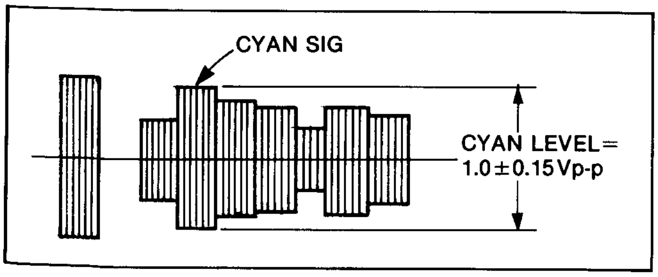


Fig.E15

16. JUMP CORRECTION AFC ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP8008	VR8004	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	FREQUENCY COUNTER	22.2kHz±100Hz	

1. Connect the 10Kohm resistor between TP8009 and REG.5V (P3001−14).
2. Adjust VR8004 so that the reading of frequency counter is 22.2KHz +− 100Hz.

17. REVERSED PHASE VIDEO OUTPUT LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
J3501-1	VR8005	SELF RECORDING	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	A−B=0±30mVp-p	

1. Supply the colour bar signal to video circuit through Y/C separator.
2. Playback the just recorded portion.
3. Confirm the A level when the unit places the playback mode.
4. Confirm the B level when the unit places the playback mode and connecting jumper wire among TP8006, TP8007 and GND.
5. Adjust VR8005 so that the level difference between A and B becomes 0 +− 30mVp−p.

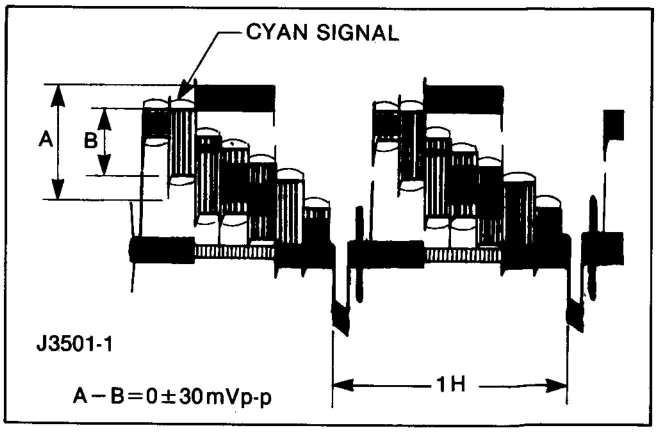


Fig.E16

AUDIO SECTION

18. AUDIO BAIS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4002 (HOT) TP4003 (GND)	VR4002	REC/PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	2.7mVrms±0.1 mVrms	

19. AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
LINE OUT (TP4001)	VR4001	SELF RECORDING	1kHz AUDIO −70dB SIGNAL/ VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	SIGNAL GENERATOR/D.V.M.	EE LEVEL= −8.0±2dB PB LEVEL= EE LEVEL ±0.5dB	

1. Supply the audio signal (1KHz/−70dB sine−wave) to audio circuit through the MIC Input Jack.
2. Set the audio select SW to Normal position.
3. Adjust VR4001 so that the level is EE Level (−8 +− 2dB) +− 0.5dB.

SYSTEM CONTROL SECTION

20. CHARACTER POSITION ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIEW FINDER	C6003	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	VIEW FINDER	CHARACTER IS CENTRE	

1. Connect the EVF unit to the VTR unit.
2. Display the battery remaining indicator and counter number on the EVF.
3. Adjust the osc control (C6003) so that the character position is shown below.

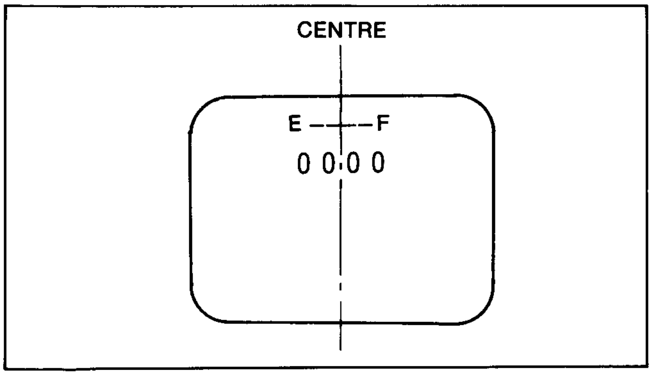


Fig.E17

Hi-Hi AUDIO SECTION

21. Hi-Fi AUDIO RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
P5503-2 (HOT) P5503-1 (GND)	VR4503	RECORDING	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	OSCILLOSCOPE	220+ −5mVp-p	

1. Connect the OSCILLOSCOPE to P5503−2 (HOT) and P5503−1 (GND).
2. Adjust VR4503 so that the Audio recording current become 220 +− 5mVp−p as shown below.

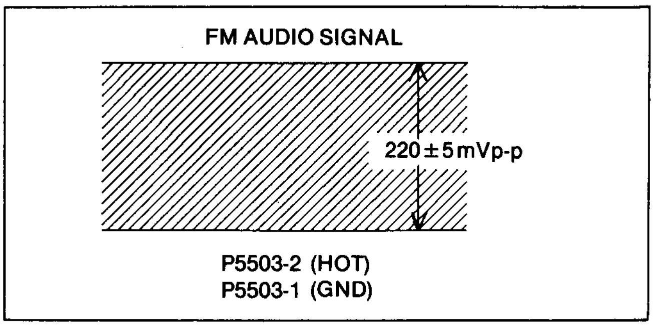


Fig.E18

22. AUDIO HEAD SWITCHING SHIFTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4506 TP2001	VR4510	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE VFM8180H8PF	OSCILLOSCOPE	$T=T2-\frac{(T2-T1)}{2}$ msec.	

1. Play back the alignment tape (VFM8180H8PF).
2. Connect the oscilloscope to TP4511 and TP2001.
3. Play back the just recorded portion.
4. Adjust VR4510 while listening to the stereo playback sound.
    1. Confirm the "T2" time when the abnormal sound just occurs during turning clockwise on VR4510.
    2. Confirm the "T1" time when the abnormal sound just occurs during turning counter clockwise on VR4510.
    3. Adjust VR4510 so that the falling edge "T" of Audio H.SW pulse becomes the center portion of the both "T2" and "T1".

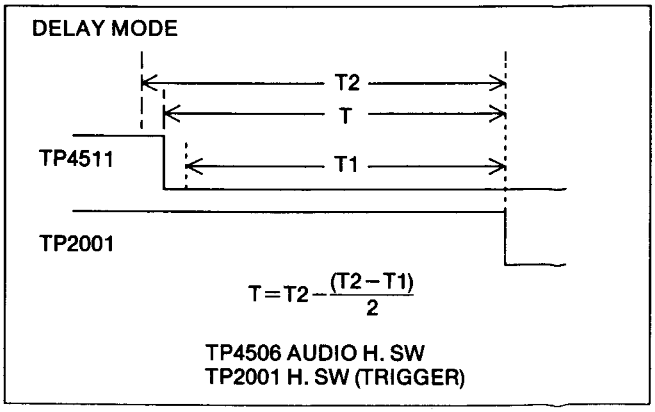


Fig.E19

23. AUDIO MUTING ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4507	VR4505	SELF RECORDING	1kHz, −10dB (316mVp-p) AUDIO SIG.
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	DC LEVEL=2V	

Note1

Before this adjustment, Tape interchangeability Adjustment must be always completed.

Note2

To achieve this adjustment, the luminance recording current adjustment should be performed as follows.

First connect the oscilloscope to P5003−2 (HOT) and P5003−1 (GND) and then adjust VR3005 for 115mVp−p (refer to Luminance Recording Current Adjustment [Item: 12]).

After this adjustment, the luminance recording current must be returned to original position again.

1. Set the Audio Select SW to "STEREO" position.
2. Play back the just recorded portion.
3. Connect the oscilloscope to TP4507.
4. Preadjust VR4505 until the DC voltage is changed into low level (Approx. 0V) at TP4507.
5. Then slowly adjust VR4505 so that the DC voltage comes at 2V as shown below.

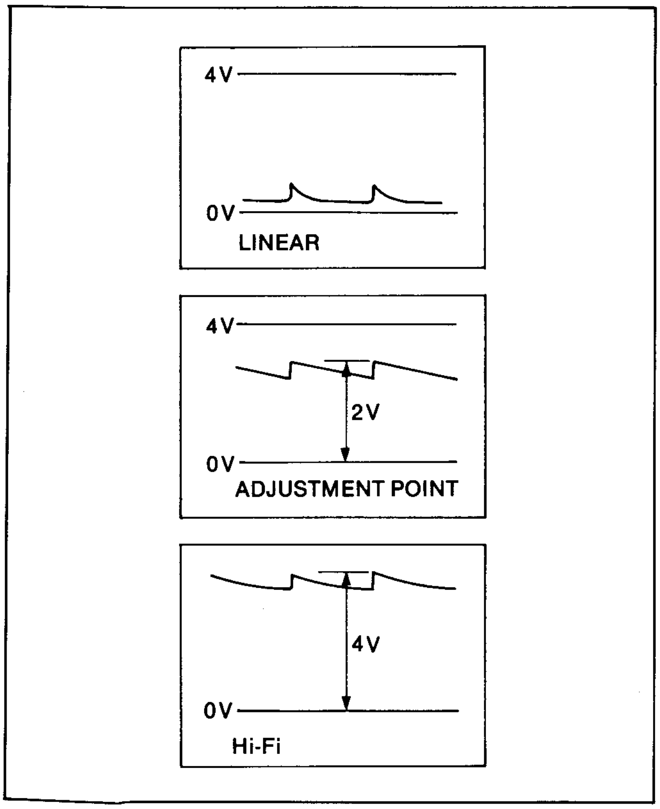


Fig.E20

24. Hi-Fi AUDIO CARRIER FREQUENCY ADJUSTMENT

TP	ADJ.	MODE	INPUT
IC4502-3 (L) IC4502-30 (R)	VR4501 (L) VR4509 (R)	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	FREQUENCY COUNTER	1400±10kHz (L) 1800±10kHz (R)	

25. AUDIO DEVIATION ADJUSTMENT

TP	ADJ.	MODE	INPUT
IC4502-5 (L) IC4502-28 (R)	VR4502 (L) VR4507 (R)	REC. PLAY	1kHz, −6dB (500mVp-p) AUDIO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	SIGNAL GENERATOR/ D.V.M.	160mVp-p	

1. Set the output(600−ohm Terminated) of the Signal generator to 1KHz and −6dB(500mVp−p), and supply it through the MIC Input Jack.
2. Adjust VR4502 to 160mVp−p at IC4502−5 on HiFi AUDIO C.B.A. for L−Channel.
3. Adjust VR4507 to 160mVp−p at IC4502−28 on HiFi AUDIO C.B.A. for R−Channel.

NOTE:

Audio signal output(1KHz/−6dB: 500mVp−p) should be terminated by 600−ohm.

26. AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
J3501-7 (L) J3501-8 (R)	VR4504 (L) VR4508 (R)	SELF RECORDING	SIGNAL GENERATOR (1kHz, −10dB)/ VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	SIGNAL GENERATOR/ V.T.V.M	E-E LEVEL=−8±−2dB (300mVrms~500mVrms) PLAYBACK LEVEL= E-E LEVEL ±0.05dB (±20mVrms)	

Note:

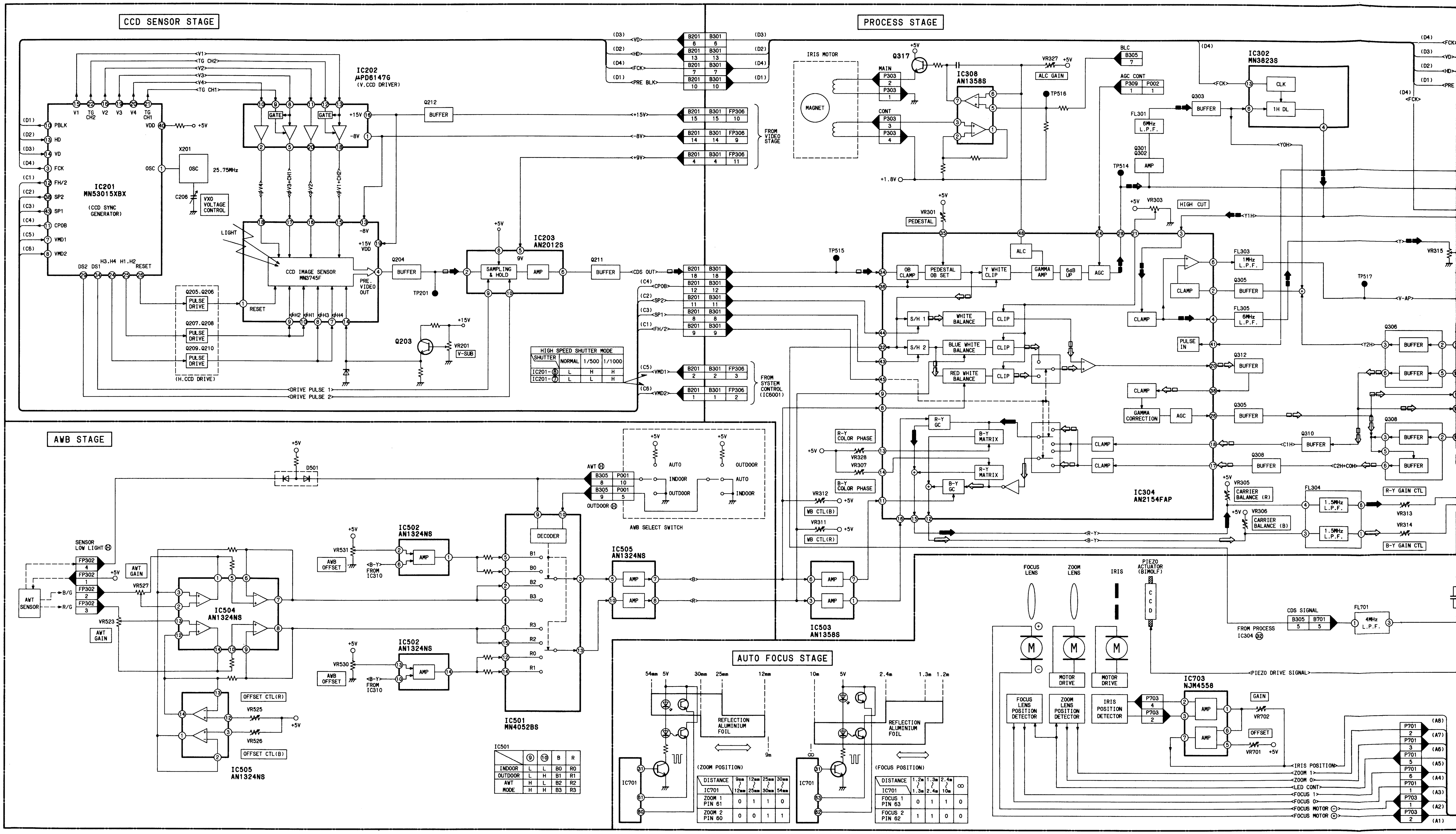
Before this adjustment, Tape Interchangeability Adjustment must be completed.

1. Play back the just recorded portion.
2. Adjust VR4504 and VR4508 volumes respectively so that the level of the playback becomes E−E level +− 0.5dB (+−20mVrms).

SECTION 3
BLOCK DIAGRAMS & SCHEMATIC DIAGRAMS

3-1. CAMERA STAGE BLOCK DIAGRAM

◀□ PRE VIDEO SIGNAL
◀■ LUMINANCE SIGNAL
◀ R-Y SIGNAL
◁■ CHROMINANCE SIGNAL
◁□ B-Y/R-Y COMPOSITE SIGNAL
◁ B-Y SIGNAL


CCD SENSOR STAGE
PROCESS STAGE
AWB STAGE
AUTO FOCUS STAGE
IC201
MN53015XBX
(CCD SYNC GENERATOR)
V1
TG CH2
V2
V3
V4
TG CH1
PBLK
HD
VD
FCK
FH/2
SP2
SP1
CPOB
VMD1
VMD2
DS2
DS1
H3.H4
H1.H2
RESET
VDD
OSC
X201
25.75MHz
C206
VXO VOLTAGE CONTROL
IC202
μPD6147G
(V.CCD DRIVER)
GATE
Q212
BUFFER
LIGHT
CCD IMAGE SENSOR
MN3745F
PRE. VIDEO OUT
Q204
BUFFER
TP201
IC203
AN2012S
SAMPLING & HOLD
AMP
Q211
BUFFER
CDS OUT
Q205.Q206
PULSE DRIVE
Q207.Q208
Q209.Q210
(H.CCD DRIVE)
Q203
VR201
V-SUB
DRIVE PULSE 1
DRIVE PULSE 2
FROM VIDEO STAGE
FROM SYSTEM CONTROL (IC6001)
B201
B301
FP306
IRIS MOTOR
MAGNET
Q317
MAIN
CONT
P303
IC308
AN1358S
VR327
ALC GAIN
TP516
BLC
B305
AGC CONT
P309
P002
IC302
MN3823S
CLK
1H DL
Q303
BUFFER
FL301
6MHz L.P.F.
Q301 Q302
AMP
TP514
VR303
HIGH CUT
VR301
PEDESTAL
TP515
OB CLAMP
PEDESTAL OB SET
Y WHITE CLIP
ALC
GAMMA AMP
6dB UP
AGC
FL303
1MHz L.P.F.
CLAMP
Q305
BUFFER
FL305
6MHz L.P.F.
TP517
S/H 1
S/H 2
WHITE BALANCE
BLUE WHITE BALANCE
RED WHITE BALANCE
CLIP
PULSE IN
Q312
BUFFER
GAMMA CORRECTION
Q306
Q308
Q310
R-Y GC
B-Y GC
B-Y MATRIX
R-Y MATRIX
R-Y COLOR PHASE
B-Y COLOR PHASE
VR328
VR307
VR312
WB CTL(B)
VR311
WB CTL(R)
IC304
AN2154FAP
VR305
CARRIER BALANCE (R)
VR306
CARRIER BALANCE (B)
FL304
1.5MHz L.P.F.
R-Y GAIN CTL
B-Y GAIN CTL
VR313
VR314
VR315
AWT SENSOR
SENSOR LOW LIGHT Ⓗ
FP302
AWT GAIN
VR527
VR523
IC504
AN1324NS
IC505
AN1324NS
OFFSET CTL(R)
OFFSET CTL(B)
VR525
VR526
IC502
AN1324NS
AWB OFFSET
VR531
VR530
FROM IC310
IC501
MN4052BS
DECODER
D501
AWT Ⓗ
OUTDOOR Ⓗ
B305
P001
AUTO
INDOOR
OUTDOOR
AWB SELECT SWITCH
IC503
AN1358S
FOCUS LENS
ZOOM LENS
IRIS
PIEZO ACTUATOR (BIMOLF)
CCD
MOTOR DRIVE
FOCUS LENS POSITION DETECTOR
ZOOM LENS POSITION DETECTOR
IRIS POSITION DETECTOR
P703
IC703
NJM4558
GAIN
VR702
OFFSET
VR701
CDS SIGNAL
B701
FL701
4MHz L.P.F.
FROM PROCESS IC304 ㉜
PIEZO DRIVE SIGNAL
IRIS POSITION
ZOOM 1
ZOOM 0
LED CONT
FOCUS 1
FOCUS 0
FOCUS MOTOR ⊖
FOCUS MOTOR ⊕
P701
REFLECTION ALUMINIUM FOIL
IC701
9m
∞
54mm
30mm
25mm
12mm
10m
2.4m
1.3m
1.2m

HIGH SPEED SHUTTER MODE			
SHUTTER	NORMAL	1/500	1/1000
IC201-⑧	L	H	H
IC201-⑦	L	L	H

IC501

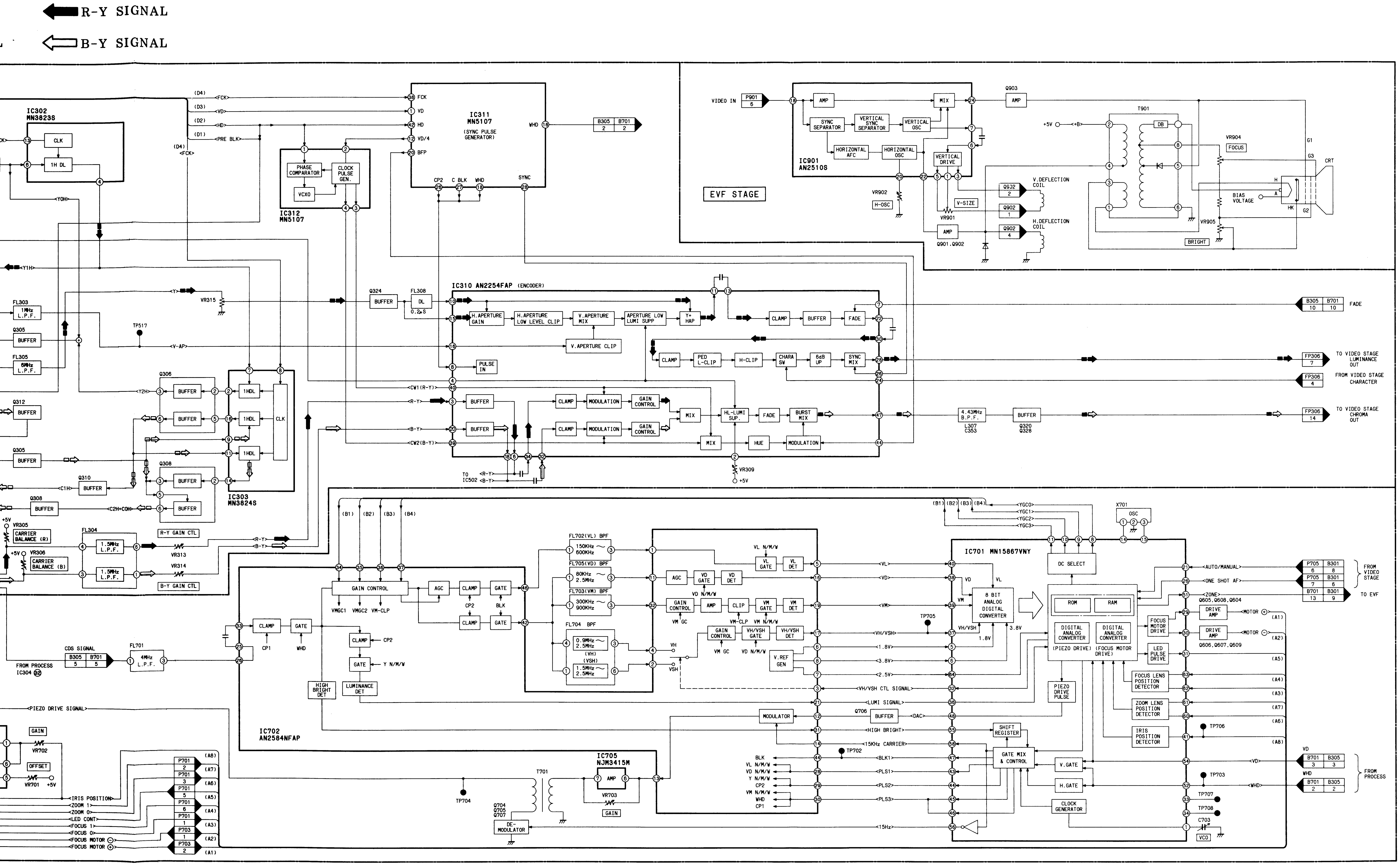
	⑨	⑩	B	R
INDOOR	L	L	B0	R0
OUTDOOR	L	H	B1	R1
AWT MODE	H	L	B2	R2
	H	H	B3	R3

(ZOOM POSITION)

DISTANCE / IC701	9mm ~ 12mm	12mm ~ 25mm	25mm ~ 30mm	30mm ~ 54mm
ZOOM 1 PIN 61	0	1	1	0
ZOOM 2 PIN 60	0	0	1	1

(FOCUS POSITION)

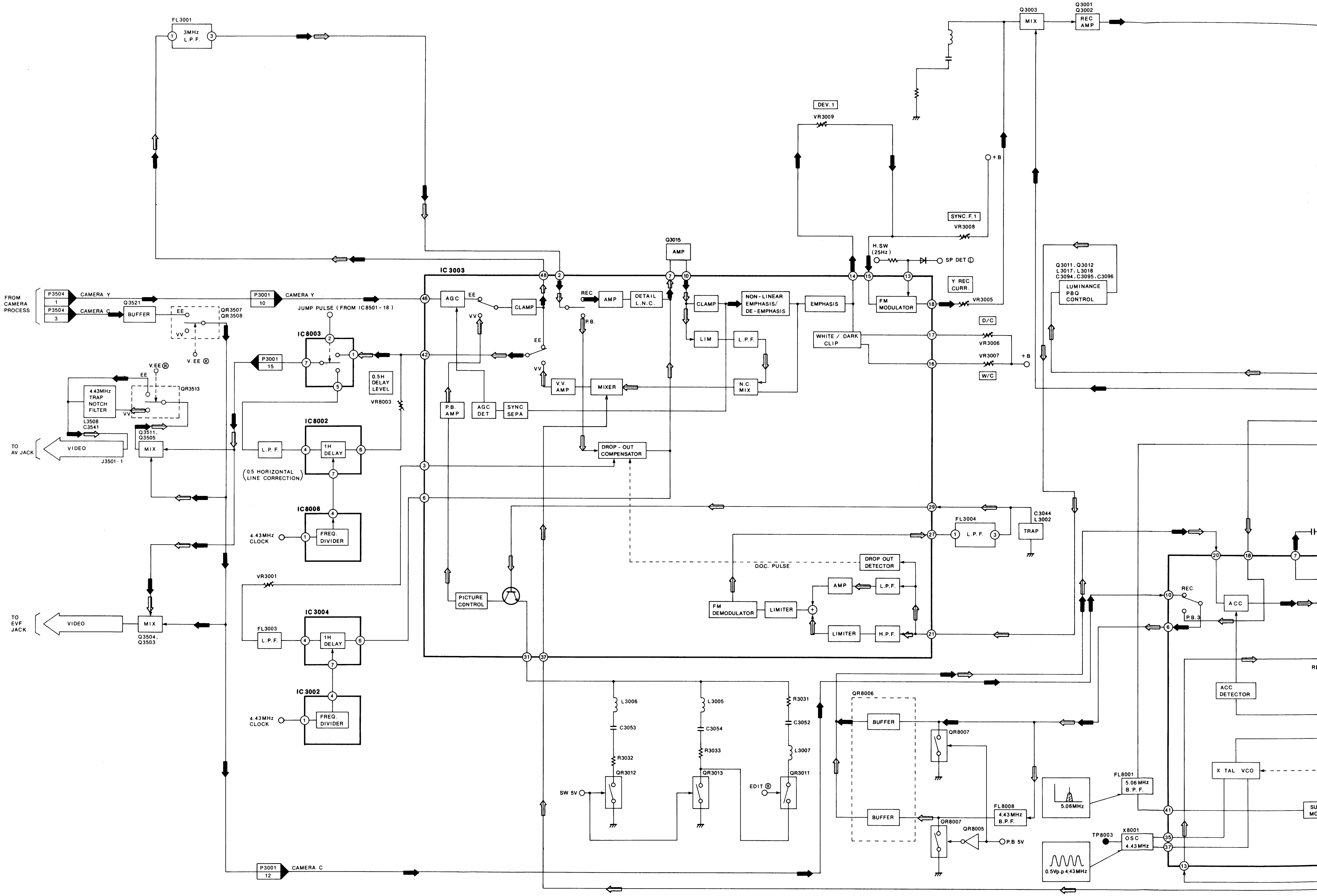
DISTANCE / IC701	1.2m ~ 1.3m	1.3m ~ 2.4m	2.4m ~ 10m	∞
FOCUS 1 PIN 63	0	1	1	0
FOCUS 2 PIN 62	1	1	0	0


R-Y SIGNAL
B-Y SIGNAL
IC302 MN3823S
CLK
1H DL
<YOH>
<Y1H>
FL303 1MHz L.P.F.
Q305 BUFFER
FL305 6MHz L.P.F.
Q312 BUFFER
Q305 BUFFER
Q308 BUFFER
Q310 BUFFER
<C1H>
<C2H+C0H>
VR315
TP517
<V-AP>
<Y>
<Y2H>
Q306 BUFFER
Q308 BUFFER
1HDL
CLK
IC303 MN3824S
(D4) <FCK>
(D3) <VD>
(D2) <HD>
(D1) <PRE BLK>
(D4) <FCK>
IC312 MN5107
PHASE COMPARATOR
CLOCK PULSE GEN.
VCXO
IC311 MN5107 (SYNC PULSE GENERATOR)
FCK
VD
HD
VD/4
BFP
CP2
C BLK
WHD
SYNC
B305 2
B701 2
Q324 BUFFER
FL308 DL 0.2μS
IC310 AN2254FAP (ENCODER)
H.APERTURE GAIN
H.APERTURE LOW LEVEL CLIP
V.APERTURE MIX
APERTURE LOW LUMI SUPP
Y+ HAP
CLAMP
BUFFER
FADE
V.APERTURE CLIP
PULSE IN
CLAMP
PED L-CLIP
H-CLIP
CHARA SW
6dB UP
SYNC MIX
<CW1(R-Y)>
<R-Y>
<B-Y>
<CW2(B-Y)>
BUFFER
CLAMP
MODULATION
GAIN CONTROL
MIX
HL-LUMI SUP.
BURST MIX
HUE
MODULATION
TO IC502 <R-Y> <B-Y>
VR309
+5V
B305 10
B701 10
FADE
FP306 7
TO VIDEO STAGE LUMINANCE OUT
FP306 4
FROM VIDEO STAGE CHARACTER
4.43MHz B.P.F. L307 C353
BUFFER Q320 Q328
FP306 14
TO VIDEO STAGE CHROMA OUT
VIDEO IN
P901 6
AMP
MIX
SYNC SEPARATOR
VERTICAL SYNC SEPARATOR
VERTICAL OSC
HORIZONTAL AFC
HORIZONTAL OSC
VERTICAL DRIVE
IC901 AN2510S
VR902 H-OSC
V-SIZE
VR901
AMP Q901.Q902
EVF STAGE
Q903 AMP
T901
+5V <+B>
DB
Q932 2
Q902 1
Q902 4
V.DEFLECTION COIL
H.DEFLECTION COIL
VR904 FOCUS
BIAS VOLTAGE
VR905
BRIGHT
G1
G3
CRT
H
A
HK
G2
+5V VR305 CARRIER BALANCE (R)
+5V VR306 CARRIER BALANCE (B)
FL304 1.5MHz L.P.F.
1.5MHz L.P.F.
R-Y GAIN CTL VR313
VR314 B-Y GAIN CTL
<R-Y>
<B-Y>
(B1) (B2) (B3) (B4)
GAIN CONTROL
VMGC1 VMGC2 VM-CLIP
AGC
CLAMP
GATE
CP2
BLK
CLAMP
GATE
CP1
WHD
CLAMP CP2
GATE Y N/M/W
HIGH BRIGHT DET
LUMINANCE DET
IC702 AN2584NFAP
CDS SIGNAL B305 5 B701 5
FROM PROCESS IC304 32
FL701 4MHz L.P.F.
FL702(VL) BPF 150KHz 600KHz
FL705(VD) BPF 80KHz 2.5MHz
FL703(VM) BPF 300KHz 900KHz
FL704 BPF 0.9MHz 2.5MHz (VH) (VSH) 1.5MHz 2.5MHz
VL N/M/W
VL GATE
VL DET
AGC
VD GATE
VD DET
VD N/M/W
GAIN CONTROL
VM GC
AMP
CLIP
VM-CLIP
VM GATE
VM N/M/W
VM DET
GAIN CONTROL
VH/VSH GATE
VH/VSH DET
VM GC
VD N/M/W
V.REF GEN
VH
VSH
MODULATOR
<VL>
<VD>
<VM>
<VH/VSH>
<1.8V>
<3.8V>
<2.5V>
<VH/VSH CTL SIGNAL>
<LUMI SIGNAL>
Q706 BUFFER <DAC>
<HIGH BRIGHT>
<15KHz CARRIER>
TP702
BLK <BLK1>
VL N/M/W
VD N/M/W <PLS1>
Y N/M/W
CP2 <PLS2>
VM N/M/W
WHD <PLS3>
CP1
<15Hz>
TP705
IC705 NJM3415M
AMP
VR703 GAIN
T701
TP704
Q704 Q705 Q707 DE-MODULATOR
X701 OSC
<YGC0> <YGC1> <YGC2> <YGC3>
IC701 MN15867VNY
DC SELECT
VD
VL
VM
8 BIT ANALOG DIGITAL CONVERTER
VH/VSH
1.8V
3.8V
ROM
RAM
DIGITAL ANALOG CONVERTER (PIEZO DRIVE)
DIGITAL ANALOG CONVERTER (FOCUS MOTOR DRIVE)
FOCUS MOTOR DRIVE
LED PULSE DRIVE
PIEZO DRIVE PULSE
FOCUS LENS POSITION DETECTOR
ZOOM LENS POSITION DETECTOR
IRIS POSITION DETECTOR
SHIFT REGISTER
GATE MIX & CONTROL
V.GATE
H.GATE
CLOCK GENERATOR
<AUTO/MANUAL>
<ONE SHOT AF>
<ZONE>
Q605.Q608.Q604
DRIVE AMP <MOTOR ⊕> (A1)
DRIVE AMP <MOTOR ⊖> (A2)
Q606.Q607.Q609
(A5) (A4) (A3) (A7) (A6) (A8)
TP706
TP703
TP707
TP708
C703 VCO
<VD>
<WHD>
P705 6 B301 8
P705 7 B301 6
B701 13 B301 9
FROM VIDEO STAGE
TO EVF
VD B701 3 B305 3
WHD B701 2 B305 2
FROM PROCESS
<PIEZO DRIVE SIGNAL>
GAIN VR702
OFFSET VR701 +5V
<IRIS POSITION>
<ZOOM 1>
<ZOOM 0>
<LED CONT>
<FOCUS 1>
<FOCUS 0>
<FOCUS MOTOR ⊖>
<FOCUS MOTOR ⊕>
P701 2 (A8)
P701 3 (A7)
P701 5 (A6)
P701 6 (A5)
P701 1 (A4)
P703 1 (A3)
P703 2 (A2) (A1)

3-2. LUMINANCE & CHROMINANCE BLOCK DIAGRAM

MAIN SIGNAL PATH IN REC MODE.

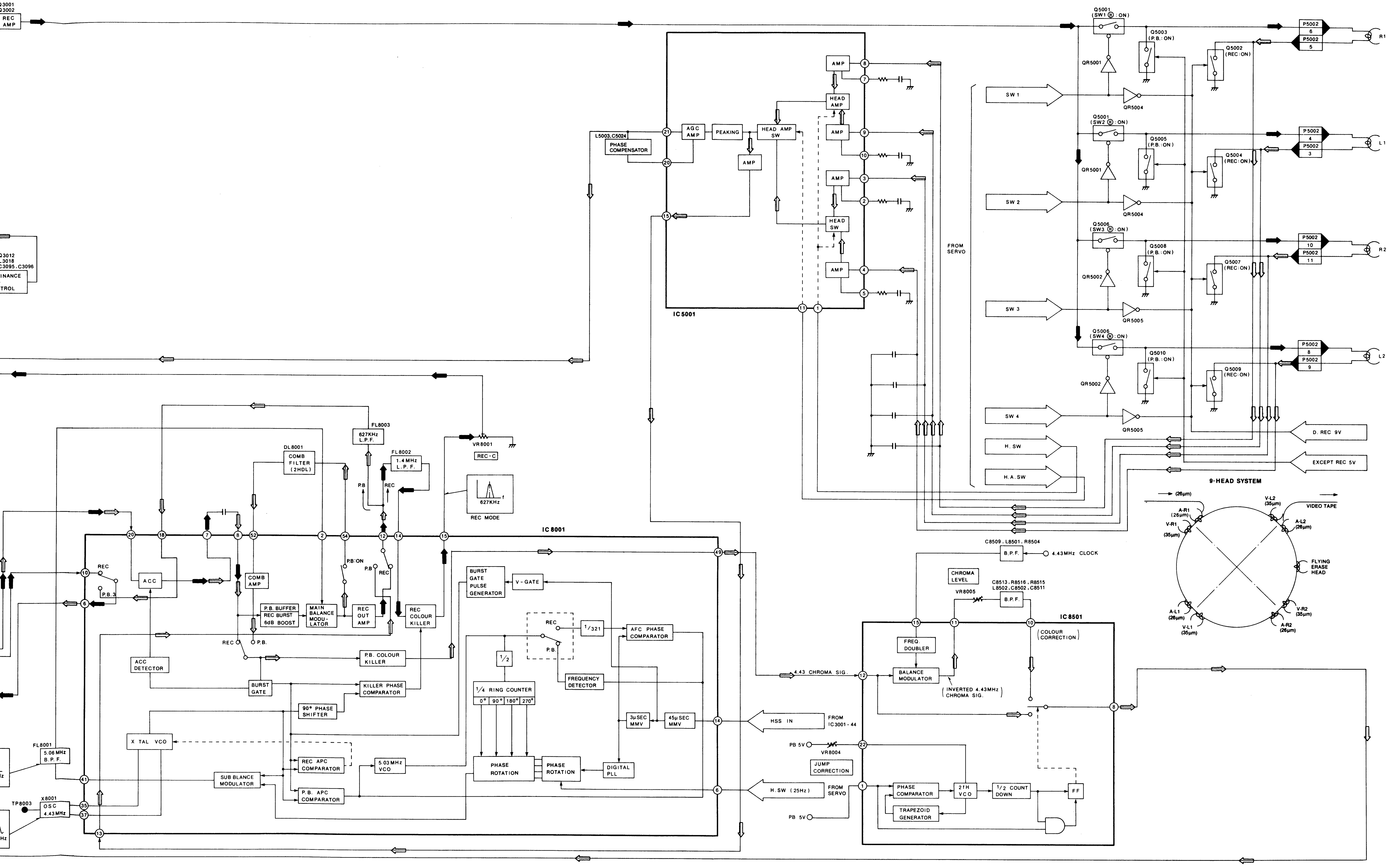
MAIN SIGNAL PATH IN PLAYBACK MODE



FL3001
3MHz L.P.F.
FROM CAMERA PROCESS
P3504
CAMERA Y
CAMERA C
Q3521
BUFFER
QR3507
QR3508
EE
VV
V.EE Ⓗ
P3001
JUMP PULSE (FROM IC8501-18)
IC8003
0.5H DELAY LEVEL
VR8003
4.43MHz TRAP NOTCH FILTER
L3508
C3541
QR3513
Q3511, Q3505
TO AV JACK
VIDEO
MIX
J3501-1
L.P.F.
IC8002
1H DELAY
(0.5 HORIZONTAL LINE CORRECTION)
IC8006
FREQ. DIVIDER
4.43MHz CLOCK
VR3001
FL3003
IC3004
IC3002
TO EVF JACK
Q3504, Q3503
CAMERA C
IC3003
AGC
CLAMP
REC
P.B.
AMP
DETAIL L.N.C.
Q3015
NON-LINEAR EMPHASIS/ DE-EMPHASIS
EMPHASIS
LIM
N.C. MIX
V.V. AMP
MIXER
P.B. AMP
AGC DET
SYNC SEPA
DROP-OUT COMPENSATOR
WHITE / DARK CLIP
FM MODULATOR
H.SW (25Hz)
SP DET Ⓛ
DEV.1
VR3009
SYNC.F.1
VR3008
+B
Y REC CURR.
VR3005
D/C
VR3006
VR3007
W/C
Q3003
Q3001
Q3002
REC AMP
Q3011, Q3012
L3017, L3018
C3094, C3095, C3096
LUMINANCE PBQ CONTROL
FL3004
C3044
L3002
TRAP
DROP OUT DETECTOR
D.O.C. PULSE
FM DEMODULATOR
LIMITER
H.P.F.
PICTURE CONTROL
L3006
C3053
R3032
QR3012
SW 5V
L3005
C3054
R3033
QR3013
R3031
C3052
L3007
QR3011
EDIT Ⓗ
QR8006
BUFFER
QR8007
FL8008
4.43MHz B.P.F.
QR8005
P.B 5V
5.06MHz
FL8001
5.06MHz B.P.F.
TP8003
X8001
OSC 4.43MHz
0.5Vp-p 4.43MHz
ACC
ACC DETECTOR
X TAL VCO

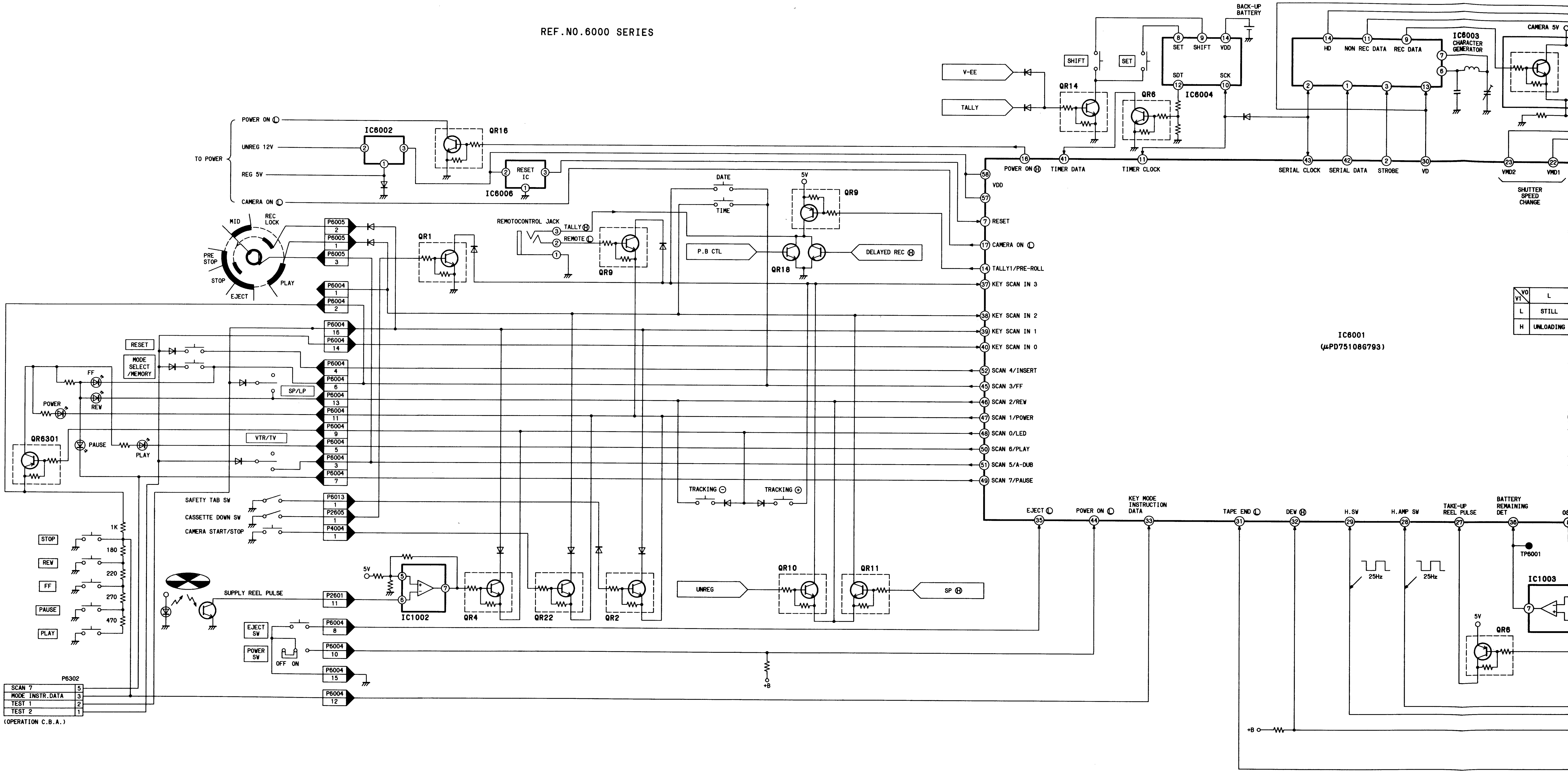
Back Page:
CAMERA STAGE Section

NAL PATH IN PLAYBACK MODE.

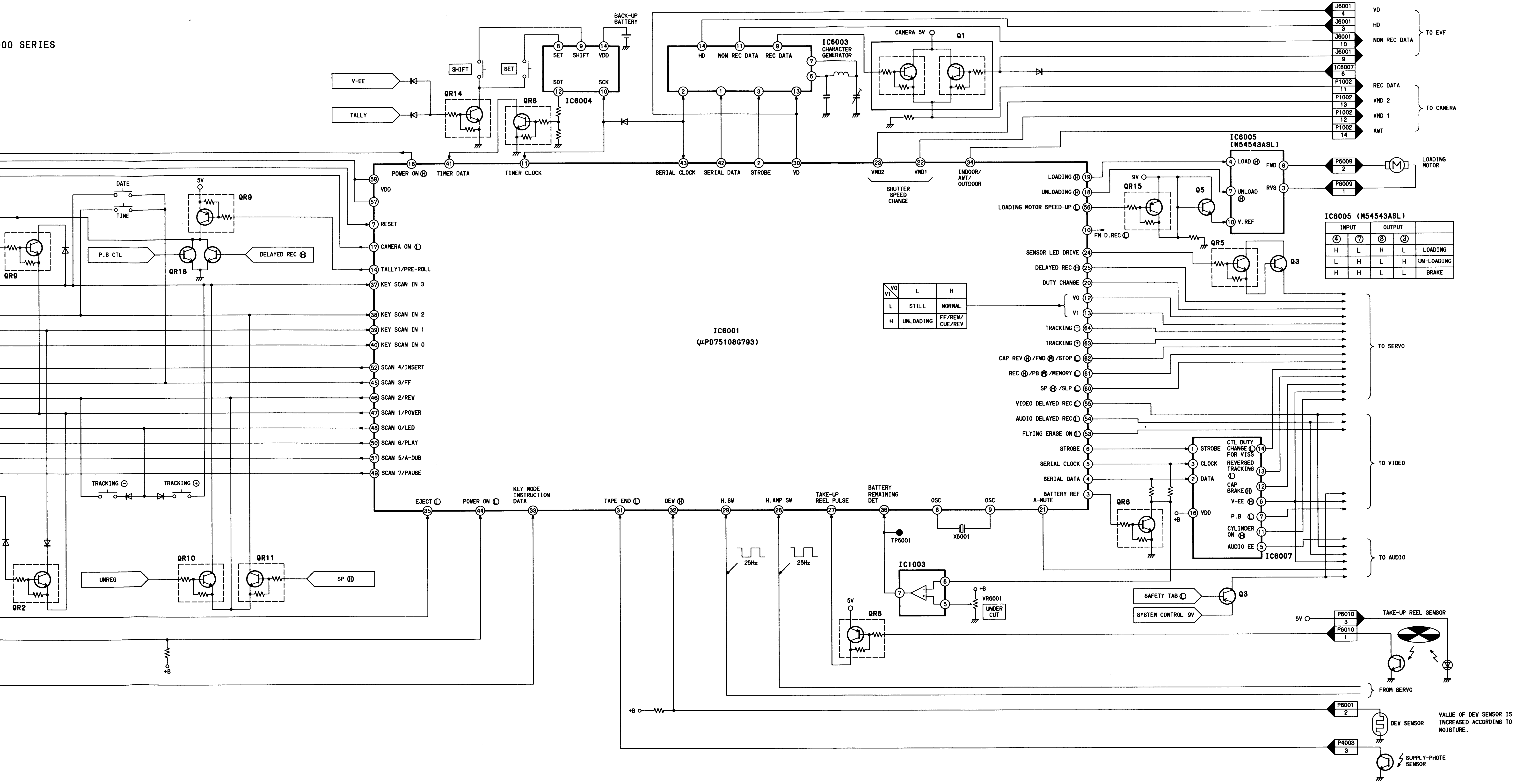


Q3001
Q3002
REC AMP
Q3012
L3018
C3095, C3096
INANCE
TROL
L5003, C5024
PHASE COMPENSATOR
AGC AMP
PEAKING
HEAD AMP SW
AMP
HEAD AMP
HEAD SW
IC 5001
FROM SERVO
SW 1
SW 2
SW 3
SW 4
H. SW
H.A. SW
Q5001 (SW1 Ⓗ : ON)
Q5001 (SW2 Ⓗ : ON)
Q5006 (SW3 Ⓗ : ON)
Q5006 (SW4 Ⓗ : ON)
Q5003 (P.B. : ON)
Q5005 (P.B. : ON)
Q5008 (P.B. : ON)
Q5010 (P.B. : ON)
Q5002 (REC : ON)
Q5004 (REC : ON)
Q5007 (REC : ON)
Q5009 (REC : ON)
QR5001
QR5002
QR5004
QR5005
P5002
R1
L1
R2
L2
D. REC 9V
EXCEPT REC 5V
9-HEAD SYSTEM
(26μm)
VIDEO TAPE
A-R1 (26μm)
V-R1 (35μm)
V-L2 (35μm)
A-L2 (26μm)
FLYING ERASE HEAD
A-L1 (26μm)
V-L1 (35μm)
A-R2 (26μm)
V-R2 (35μm)
FL8003
627KHz L.P.F.
DL8001
COMB FILTER (2HDL)
FL8002
1.4MHz L.P.F.
VR8001
REC-C
627KHz
REC MODE
IC 8001
REC
P.B.
P.B.3
ACC
COMB AMP
P.B. BUFFER
REC BURST
6dB BOOST
MAIN BALANCE MODULATOR
REC OUT AMP
REC COLOUR KILLER
P.B : ON
BURST GATE PULSE GENERATOR
V-GATE
1/321
AFC PHASE COMPARATOR
1/2
FREQUENCY DETECTOR
1/4 RING COUNTER
0° 90° 180° 270°
ACC DETECTOR
P.B. COLOUR KILLER
BURST GATE
KILLER PHASE COMPARATOR
90° PHASE SHIFTER
X TAL VCO
REC APC COMPARATOR
P.B. APC COMPARATOR
5.03MHz VCO
PHASE ROTATION
DIGITAL PLL
3μSEC MMV
45μSEC MMV
SUB BLANCE MODULATOR
FL8001
5.06MHz B.P.F.
TP8003
X8001
OSC 4.43MHz
HSS IN
FROM IC3001-44
H.SW (25Hz)
FROM SERVO
C8509, L8501, R8504
B.P.F.
4.43MHz CLOCK
CHROMA LEVEL
C8513, R8516, R8515
L8502, C8502, C8511
VR8005
IC 8501
(COLOUR CORRECTION)
FREQ. DOUBLER
BALANCE MODULATOR
4.43 CHROMA SIG.
(INVERTED 4.43MHz CHROMA SIG.)
PB 5V
VR8004
JUMP CORRECTION
PHASE COMPARATOR
TRAPEZOID GENERATOR
2fH VCO
1/2 COUNT DOWN
FF

3-3. SYSTEM CONTROL BLOCK DIAGRAM


REF.NO.6000 SERIES
BACK-UP BATTERY
SHIFT
SET
SET
SHIFT
VDD
SDT
SCK
IC6004
V-EE
TALLY
QR14
QR6
IC6003 CHARACTER GENERATOR
HD
NON REC DATA
REC DATA
CAMERA 5V
TO POWER
POWER ON Ⓛ
UNREG 12V
REG 5V
CAMERA ON Ⓛ
IC6002
QR16
RESET IC
IC6006
POWER ON Ⓗ
TIMER DATA
TIMER CLOCK
SERIAL CLOCK
SERIAL DATA
STROBE
VD
VMD2
VMD1
SHUTTER SPEED CHANGE
VDD
RESET
CAMERA ON Ⓛ
TALLY1/PRE-ROLL
KEY SCAN IN 3
KEY SCAN IN 2
KEY SCAN IN 1
KEY SCAN IN 0
SCAN 4/INSERT
SCAN 3/FF
SCAN 2/REW
SCAN 1/POWER
SCAN 0/LED
SCAN 6/PLAY
SCAN 5/A-DUB
SCAN 7/PAUSE
IC6001
(μPD751086793)
DATE
TIME
5V
QR9
REMOTOCONTROL JACK
TALLY Ⓗ
REMOTE Ⓛ
QR9
P.B CTL
QR18
DELAYED REC Ⓗ
MID
REC LOCK
PRE STOP
STOP
EJECT
PLAY
P6005
P6004
QR1
RESET
MODE SELECT /MEMORY
SP/LP
FF
REW
POWER
QR6301
PAUSE
PLAY
VTR/TV
SAFETY TAB SW
CASSETTE DOWN SW
CAMERA START/STOP
P6013
P2605
P4004
TRACKING ⊖
TRACKING ⊕
1K
180
220
270
470
STOP
REW
FF
PAUSE
PLAY
P6302
SCAN 7
MODE INSTR.DATA
TEST 1
TEST 2
(OPERATION C.B.A.)
SUPPLY REEL PULSE
P2601
IC1002
QR4
QR22
QR2
UNREG
QR10
QR11
SP Ⓗ
EJECT SW
POWER SW
OFF ON
+B
EJECT Ⓛ
POWER ON Ⓛ
KEY MODE INSTRUCTION DATA
TAPE END Ⓛ
DEW Ⓗ
H.SW
H.AMP SW
TAKE-UP REEL PULSE
BATTERY REMAINING DET
25Hz
25Hz
TP6001
IC1003
5V
QR6
+B
V0
V1
L
STILL
H
UNLOADING

00 SERIES


BACK-UP BATTERY
SET
SHIFT
VDD
SDT
SCK
IC6004
SHIFT
SET
V-EE
TALLY
QR14
QR6
HD
NON REC DATA
REC DATA
IC6003
CHARACTER GENERATOR
CAMERA 5V
Q1
J6001 4
J6001 3
J6001 10
J6001 9
IC6007 6
P1002 11
P1002 13
P1002 12
P1002 14
VD
HD
NON REC DATA
TO EVF
REC DATA
VMD 2
VMD 1
AWT
TO CAMERA
IC6005 (M54543ASL)
LOAD Ⓗ
UNLOAD Ⓗ
V.REF
FWD
RVS
P6009 2
P6009 1
LOADING MOTOR
POWER ON Ⓗ
TIMER DATA
TIMER CLOCK
SERIAL CLOCK
SERIAL DATA
STROBE
VD
VMD2
VMD1
INDOOR/ AWT/ OUTDOOR
SHUTTER SPEED CHANGE
LOADING Ⓗ
UNLOADING Ⓗ
LOADING MOTOR SPEED-UP Ⓛ
FM D.REC Ⓛ
9V
QR15
Q5
QR5
Q3
DATE
TIME
5V
QR9
QR9
P.B CTL
DELAYED REC Ⓗ
QR18
VDD
RESET
CAMERA ON Ⓛ
TALLY1/PRE-ROLL
KEY SCAN IN 3
KEY SCAN IN 2
KEY SCAN IN 1
KEY SCAN IN 0
SCAN 4/INSERT
SCAN 3/FF
SCAN 2/REW
SCAN 1/POWER
SCAN 0/LED
SCAN 6/PLAY
SCAN 5/A-DUB
SCAN 7/PAUSE
IC6001 (μPD75108G793)
SENSOR LED DRIVE
DELAYED REC Ⓗ
DUTY CHANGE
V0
V1
TRACKING ⊖
TRACKING ⊕
CAP REV Ⓗ/FWD Ⓜ/STOP Ⓛ
REC Ⓗ/PB Ⓜ/MEMORY Ⓛ
SP Ⓗ/SLP Ⓛ
VIDEO DELAYED REC Ⓛ
AUDIO DELAYED REC Ⓛ
FLYING ERASE ON Ⓛ
STROBE
SERIAL CLOCK
SERIAL DATA
BATTERY REF
TO SERVO
TO VIDEO
TO AUDIO
STROBE
CLOCK
DATA
VDD
CTL DUTY CHANGE Ⓛ FOR VISS
REVERSED TRACKING Ⓛ
CAP BRAKE Ⓗ
V-EE Ⓗ
P.B Ⓛ
CYLINDER ON Ⓗ
AUDIO EE
IC6007
QR8
+B
TRACKING ⊖
TRACKING ⊕
EJECT Ⓛ
POWER ON Ⓛ
KEY MODE INSTRUCTION DATA
TAPE END Ⓛ
DEW Ⓗ
H.SW
H.AMP SW
TAKE-UP REEL PULSE
BATTERY REMAINING DET
OSC
OSC
A-MUTE
TP6001
X6001
25Hz
25Hz
IC1003
+B
VR6001
UNDER CUT
5V
QR6
SAFETY TAB Ⓛ
SYSTEM CONTROL 9V
Q3
QR2
QR10
QR11
UNREG
SP Ⓗ
+B
5V
P6010 3
P6010 1
TAKE-UP REEL SENSOR
FROM SERVO
+B
P6001 2
DEW SENSOR
VALUE OF DEW SENSOR IS INCREASED ACCORDING TO MOISTURE.
P4003 3
SUPPLY-PHOTE SENSOR

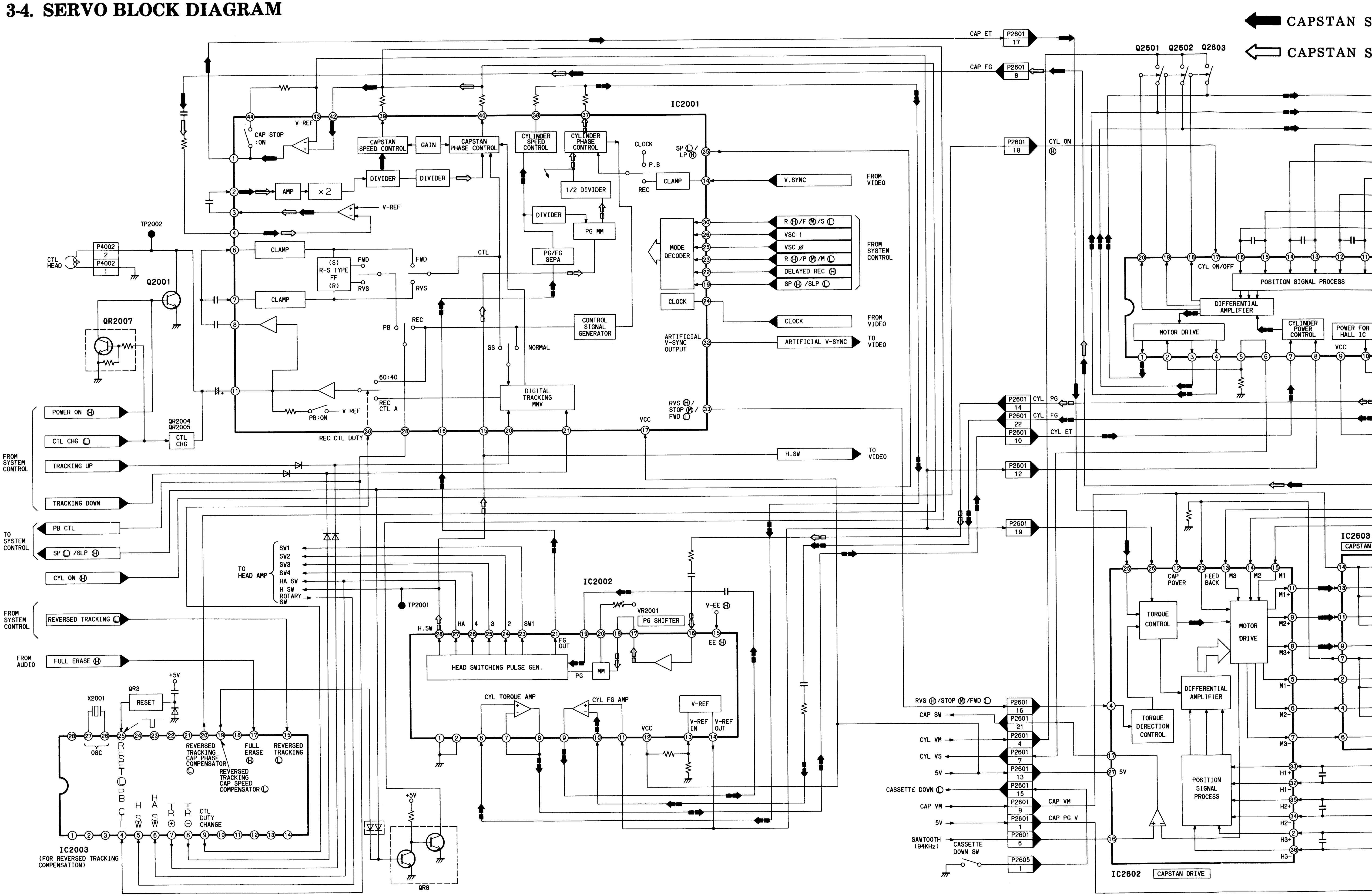
V1 \ V0	L	H
L	STILL	NORMAL
H	UNLOADING	FF/REW/ CUE/REV

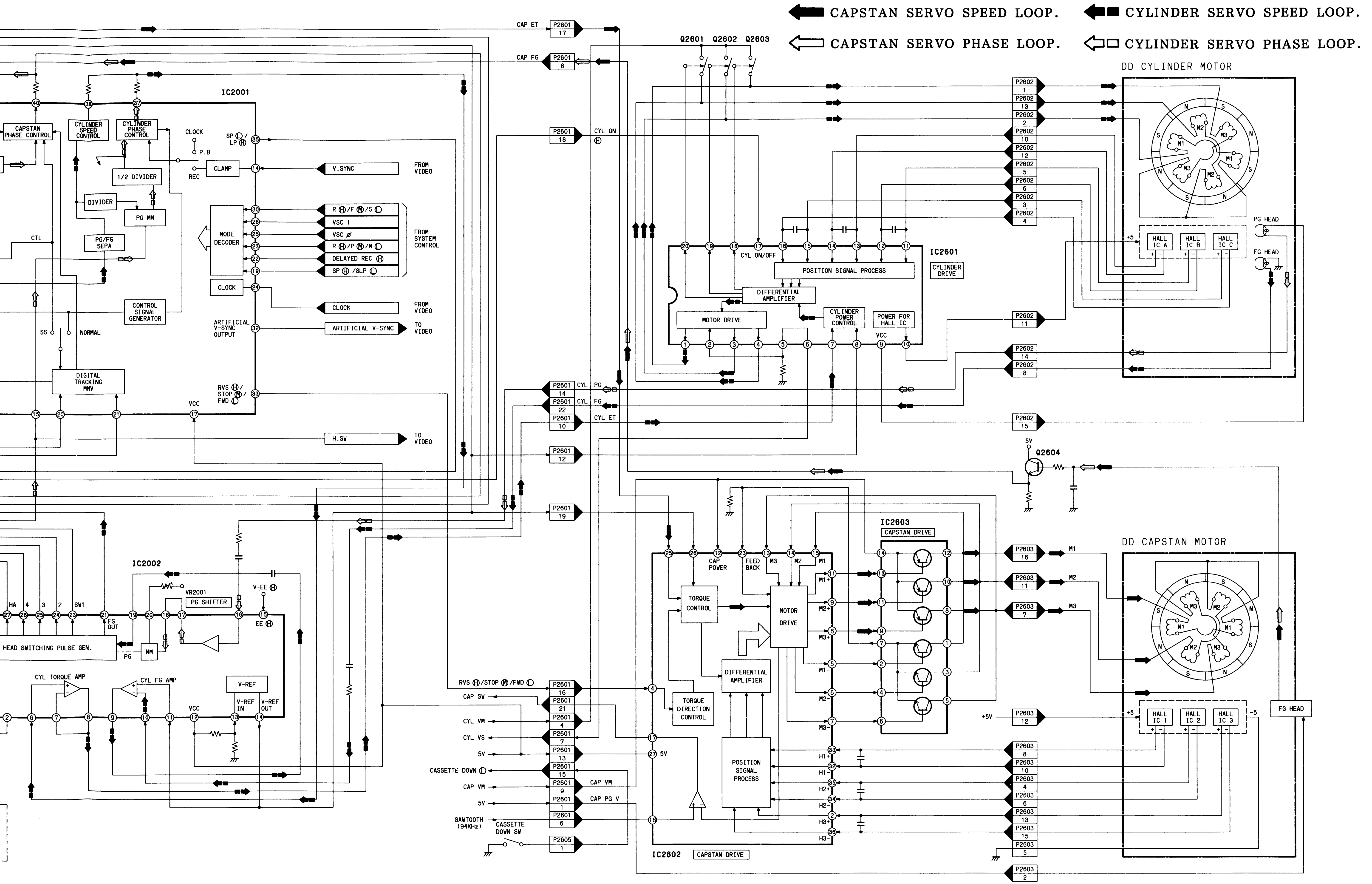
IC6005 (M54543ASL)

INPUT		OUTPUT		
④	⑦	⑧	③	
H	L	H	L	LOADING
L	H	L	H	UN-LOADING
H	H	L	L	BRAKE

Next Page:
SERVO Section

3-4. SERVO BLOCK DIAGRAM

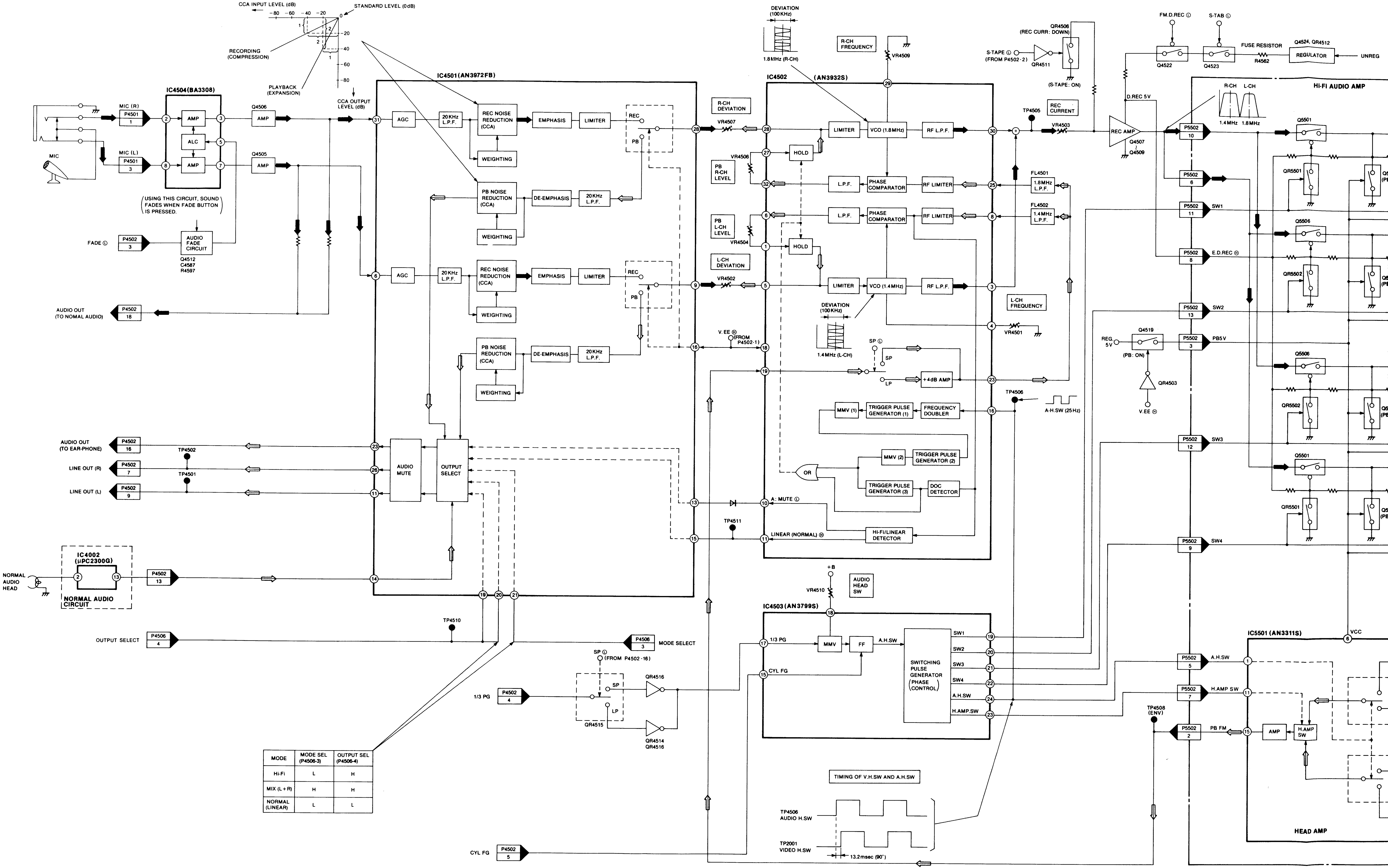

CAPSTAN S
CAPSTAN S
IC2001
CAP STOP :ON
V-REF
CAPSTAN SPEED CONTROL
GAIN
CAPSTAN PHASE CONTROL
CYLINDER SPEED CONTROL
CYLINDER PHASE CONTROL
CLOCK
P.B
REC
CLAMP
SP Ⓛ/LP Ⓗ
V.SYNC
FROM VIDEO
AMP
×2
DIVIDER
DIVIDER
1/2 DIVIDER
DIVIDER
PG MM
PG/FG SEPA
MODE DECODER
R Ⓗ/F Ⓜ/S Ⓛ
VSC 1
VSC ø
R Ⓗ/P Ⓜ/M Ⓛ
DELAYED REC Ⓗ
SP Ⓗ /SLP Ⓛ
FROM SYSTEM CONTROL
CLOCK
CLOCK
FROM VIDEO
ARTIFICIAL V-SYNC OUTPUT
ARTIFICIAL V-SYNC
TO VIDEO
CONTROL SIGNAL GENERATOR
TP2002
CTL HEAD
P4002 2
P4002 1
Q2001
QR2007
CLAMP
CLAMP
(S) R-S TYPE FF (R)
FWD
RVS
FWD
RVS
CTL
PB
REC
SS
NORMAL
60:40
V REF
PB:ON
REC CTL A
DIGITAL TRACKING MMV
REC CTL DUTY
VCC
RVS Ⓗ/ STOP Ⓜ/ FWD Ⓛ
H.SW
TO VIDEO
POWER ON Ⓗ
CTL CHG Ⓛ
QR2004 QR2005
CTL CHG
TRACKING UP
TRACKING DOWN
FROM SYSTEM CONTROL
PB CTL
SP Ⓛ /SLP Ⓗ
TO SYSTEM CONTROL
CYL ON Ⓗ
REVERSED TRACKING Ⓛ
FROM SYSTEM CONTROL
FULL ERASE Ⓗ
FROM AUDIO
TO HEAD AMP
SW1
SW2
SW3
SW4
HA SW
H SW
ROTARY SW
TP2001
IC2002
VR2001
PG SHIFTER
V-EE Ⓗ
EE Ⓗ
H.SW
HA
4
3
2
SW1
FG OUT
HEAD SWITCHING PULSE GEN.
PG
MM
CYL TORQUE AMP
CYL FG AMP
V-REF
V-REF IN
V-REF OUT
VCC
+5V
X2001
QR3
RESET
OSC
RESET
OSC
CTL PB
H SW
HA SW
TR ⊕
TR ⊖
CTL DUTY CHANGE
REVERSED TRACKING CAP PHASE COMPENSATOR Ⓛ
REVERSED TRACKING CAP SPEED COMPENSATOR Ⓛ
FULL ERASE Ⓗ
REVERSED TRACKING Ⓛ
IC2003 (FOR REVERSED TRACKING COMPENSATION)
+5V
QR8
CAP ET
P2601 17
CAP FG
P2601 8
P2601 18
CYL ON Ⓗ
Q2601 Q2602 Q2603
CYL ON/OFF
POSITION SIGNAL PROCESS
DIFFERENTIAL AMPLIFIER
MOTOR DRIVE
CYLINDER POWER CONTROL
POWER FOR HALL IC
VCC
P2601 14
CYL PG
P2601 22
CYL FG
P2601 10
CYL ET
P2601 12
P2601 19
IC2603
CAPSTAN
RVS Ⓗ/STOP Ⓜ/FWD Ⓛ
P2601 16
CAP SW
P2601 21
CYL VM
P2601 4
CYL VS
P2601 7
5V
P2601 13
CASSETTE DOWN Ⓛ
P2601 15
CAP VM
P2601 9
CAP VM
5V
P2601 1
CAP PG V
SAWTOOTH (94KHz)
P2601 6
CASSETTE DOWN SW
P2605 1
CAP POWER
FEED BACK
M3
M2
M1
M1+
M2+
M3+
M1−
M2−
M3−
TORQUE CONTROL
MOTOR DRIVE
DIFFERENTIAL AMPLIFIER
TORQUE DIRECTION CONTROL
POSITION SIGNAL PROCESS
5V
H1+
H1−
H2+
H2−
H3+
H3−
IC2602
CAPSTAN DRIVE


CAPSTAN SERVO SPEED LOOP.
CAPSTAN SERVO PHASE LOOP.
CYLINDER SERVO SPEED LOOP.
CYLINDER SERVO PHASE LOOP.
DD CYLINDER MOTOR
DD CAPSTAN MOTOR
IC2001
IC2002
IC2601
CYLINDER DRIVE
IC2602
CAPSTAN DRIVE
IC2603
CAPSTAN DRIVE
Q2601 Q2602 Q2603
Q2604
CAPSTAN PHASE CONTROL
CYLINDER SPEED CONTROL
CYLINDER PHASE CONTROL
1/2 DIVIDER
DIVIDER
PG MM
PG/FG SEPA
CONTROL SIGNAL GENERATOR
DIGITAL TRACKING MMV
CLOCK
P.B
REC
CLAMP
SP Ⓛ/ LP Ⓗ
MODE DECODER
CLOCK
ARTIFICIAL V-SYNC OUTPUT
RVS Ⓗ/ STOP Ⓜ/ FWD Ⓛ
VCC
CTL
SS
NORMAL
V.SYNC
FROM VIDEO
R Ⓗ/F Ⓜ/S Ⓛ
VSC 1
VSC ø
R Ⓗ/P Ⓜ/M Ⓛ
DELAYED REC Ⓗ
SP Ⓗ /SLP Ⓛ
FROM SYSTEM CONTROL
CLOCK
FROM VIDEO
ARTIFICIAL V-SYNC
TO VIDEO
H.SW
TO VIDEO
CAP ET
CAP FG
CYL ON Ⓗ
CYL PG
CYL FG
CYL ET
P2601
P2602
P2603
P2605
HEAD SWITCHING PULSE GEN.
HA
SW1
FG OUT
PG
MM
VR2001
PG SHIFTER
V-EE Ⓗ
EE Ⓗ
CYL TORQUE AMP
CYL FG AMP
V-REF
V-REF IN
V-REF OUT
VCC
RVS Ⓗ/STOP Ⓜ/FWD Ⓛ
CAP SW
CYL VM
CYL VS
5V
CASSETTE DOWN Ⓛ
CAP VM
5V
SAWTOOTH (94KHz)
CASSETTE DOWN SW
CAP VM
CAP PG V
CYL ON/OFF
POSITION SIGNAL PROCESS
DIFFERENTIAL AMPLIFIER
MOTOR DRIVE
CYLINDER POWER CONTROL
POWER FOR HALL IC
VCC
HALL IC A
HALL IC B
HALL IC C
+5
PG HEAD
FG HEAD
M1 M2 M3
N S
5V
CAP POWER
FEED BACK
M3 M2 M1
TORQUE CONTROL
MOTOR DRIVE
DIFFERENTIAL AMPLIFIER
TORQUE DIRECTION CONTROL
POSITION SIGNAL PROCESS
M1+ M2+ M3+ M1- M2- M3-
H1+ H1- H2+ H2- H3+ H3-
5V
+5V
HALL IC 1
HALL IC 2
HALL IC 3
+5
-5
FG HEAD

3-5. Hi-Fi AUDIO BLOCK DIAGRAM

MAIN SIGNAL PATH IN REC MODE

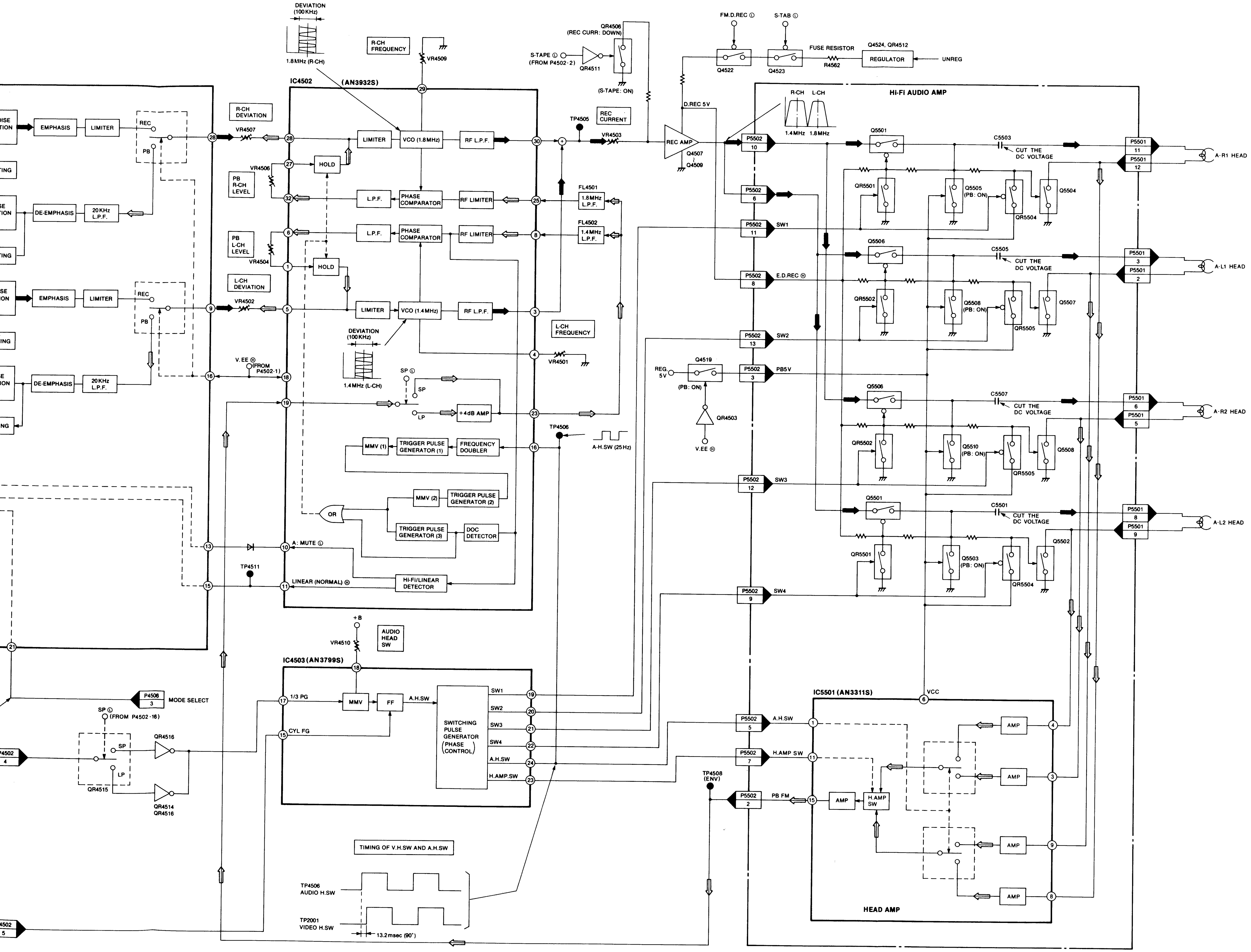
MAIN SIGNAL PATH IN PLAYBACK MODE

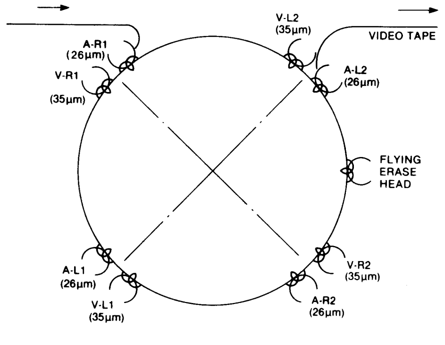


CCA INPUT LEVEL (dB)
STANDARD LEVEL (0dB)
RECORDING (COMPRESSION)
PLAYBACK (EXPANSION)
CCA OUTPUT LEVEL (dB)
IC4504(BA3308)
MIC (R)
MIC (L)
MIC
AMP
ALC
(USING THIS CIRCUIT, SOUND FADES WHEN FADE BUTTON IS PRESSED.
AUDIO FADE CIRCUIT
Q4512 C4587 R4597
FADE Ⓛ
AUDIO OUT (TO NOMAL AUDIO)
Q4506
Q4505
IC4501(AN3972FB)
AGC
20KHz L.P.F.
REC NOISE REDUCTION (CCA)
EMPHASIS
LIMITER
WEIGHTING
PB NOISE REDUCTION (CCA)
DE-EMPHASIS
REC
PB
AUDIO MUTE
OUTPUT SELECT
AUDIO OUT (TO EAR-PHONE)
LINE OUT (R)
LINE OUT (L)
TP4502
TP4501
IC4002 (μPC2300G)
NORMAL AUDIO CIRCUIT
NORMAL AUDIO HEAD
OUTPUT SELECT
MODE SELECT
TP4510
1/3 PG
CYL FG
SP Ⓛ (FROM P4502-16)
QR4515
QR4516
QR4514 QR4516
DEVIATION (100KHz)
1.8MHz (R-CH)
R-CH FREQUENCY
VR4509
IC4502 (AN3932S)
R-CH DEVIATION
VR4507
LIMITER
VCO (1.8MHz)
RF L.P.F.
HOLD
PB R-CH LEVEL
VR4506
L.P.F.
PHASE COMPARATOR
RF LIMITER
PB L-CH LEVEL
VR4504
L-CH DEVIATION
VR4502
VCO (1.4MHz)
DEVIATION (100KHz)
1.4MHz (L-CH)
L-CH FREQUENCY
VR4501
V.EE Ⓗ (FROM P4502-1)
SP Ⓛ
SP
LP
+4dB AMP
MMV (1)
TRIGGER PULSE GENERATOR (1)
FREQUENCY DOUBLER
MMV (2)
TRIGGER PULSE GENERATOR (2)
OR
TRIGGER PULSE GENERATOR (3)
DOC DETECTOR
A: MUTE Ⓛ
LINEAR (NORMAL) Ⓗ
HI-FI/LINEAR DETECTOR
TP4511
TP4506
A.H.SW (25Hz)
+B
VR4510
AUDIO HEAD SW
IC4503 (AN3799S)
MMV
FF
A.H.SW
SWITCHING PULSE GENERATOR (PHASE CONTROL)
SW1
SW2
SW3
SW4
H.AMP.SW
TIMING OF V.H.SW AND A.H.SW
TP4506 AUDIO H.SW
TP2001 VIDEO H.SW
13.2msec (90°)
QR4506 (REC CURR: DOWN)
S-TAPE Ⓛ (FROM P4502-2)
QR4511
(S-TAPE: ON)
TP4505
REC CURRENT
VR4503
FL4501 1.8MHz L.P.F.
FL4502 1.4MHz L.P.F.
REC AMP
Q4507 Q4509
D.REC 5V
FM.D.REC Ⓛ
S-TAB Ⓛ
Q4522
Q4523
FUSE RESISTOR R4562
Q4524, QR4512
REGULATOR
UNREG
HI-FI AUDIO AMP
R-CH L-CH
1.4MHz 1.8MHz
P5502
Q5501
QR5501
Q5506
QR5502
E.D.REC Ⓗ
PB5V
REG. 5V
Q4519
(PB: ON)
QR4503
V.EE Ⓗ
TP4508 (ENV)
IC5501 (AN3311S)
VCC
A.H.SW
H.AMP SW
PB FM
AMP
H.AMP SW
HEAD AMP

MODE	MODE SEL (P4506-3)	OUTPUT SEL (P4506-4)
Hi-Fi	L	H
MIX (L+R)	H	H
NORMAL (LINEAR)	L	L

GNAL PATH IN REC MODE ⟸MAIN SIGNAL PATH IN PLAYBACK MODE

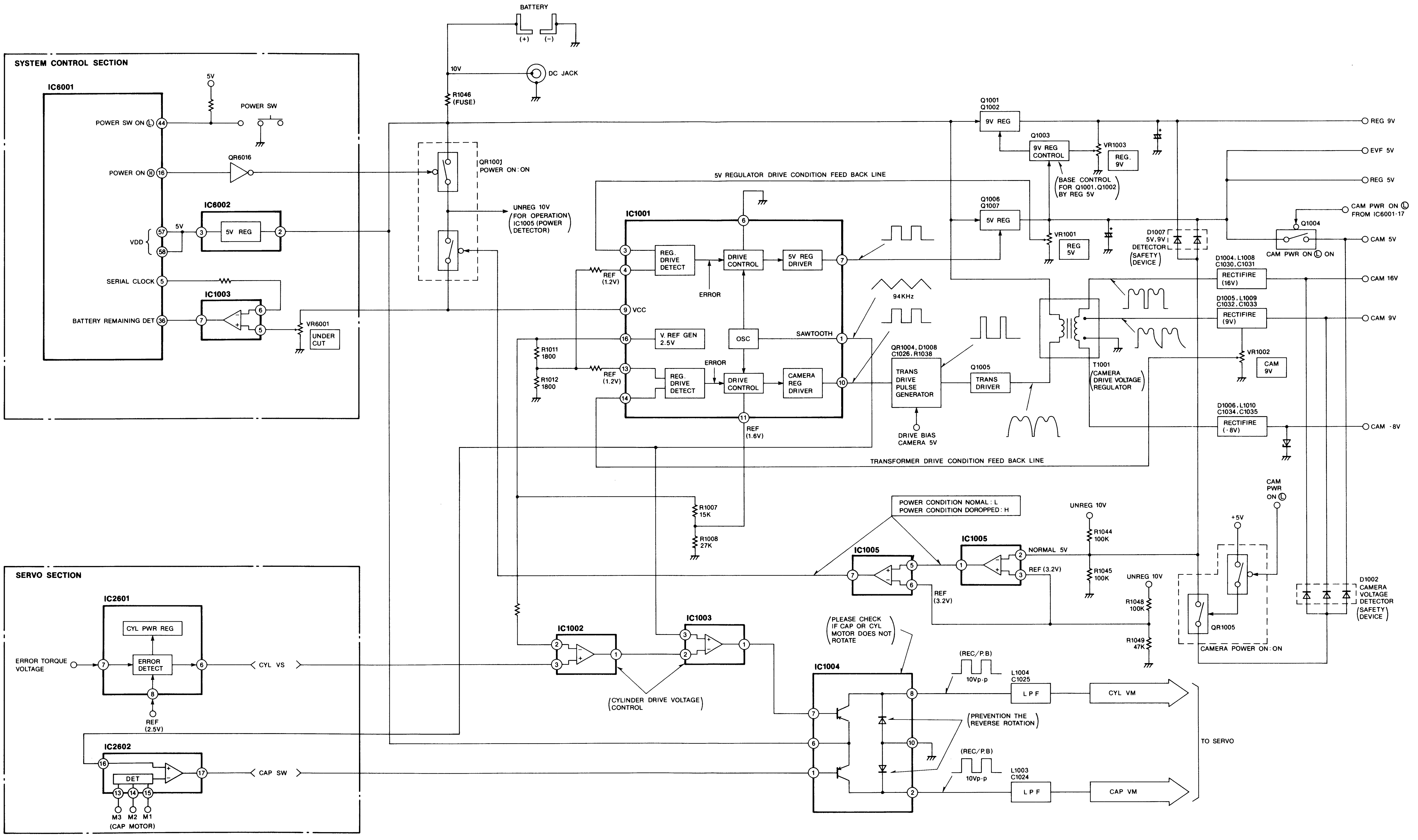

DEVIATION (100KHz)
1.8MHz (R-CH)
R-CH FREQUENCY
VR4509
IC4502 (AN3932S)
QR4506 (REC CURR: DOWN)
S-TAPE Ⓛ (FROM P4502-2)
QR4511
(S-TAPE: ON)
FM.D.REC Ⓛ
S-TAB Ⓛ
FUSE RESISTOR
R4562
Q4522
Q4523
Q4524, Q4512
REGULATOR
UNREG
EMPHASIS
LIMITER
REC
PB
R-CH DEVIATION
VR4507
LIMITER
VCO (1.8MHz)
RF L.P.F.
TP4505
REC CURRENT
VR4503
REC AMP
Q4507 ~ Q4509
D.REC 5V
R-CH L-CH
1.4MHz 1.8MHz
HI-FI AUDIO AMP
PB R-CH LEVEL
VR4506
HOLD
L.P.F.
PHASE COMPARATOR
RF LIMITER
FL4501 1.8MHz L.P.F.
FL4502 1.4MHz L.P.F.
DE-EMPHASIS
20KHz L.P.F.
PB L-CH LEVEL
VR4504
L-CH DEVIATION
VR4502
VCO (1.4MHz)
DEVIATION (100KHz)
1.4MHz (L-CH)
L-CH FREQUENCY
VR4501
V.EE Ⓗ (FROM P4502-1)
SP Ⓛ
SP
LP
+4dB AMP
TP4506
A-H.SW (25Hz)
MMV (1)
TRIGGER PULSE GENERATOR (1)
FREQUENCY DOUBLER
MMV (2)
TRIGGER PULSE GENERATOR (2)
OR
TRIGGER PULSE GENERATOR (3)
DOC DETECTOR
A: MUTE Ⓛ
TP4511
LINEAR (NORMAL) Ⓗ
HI-FI/LINEAR DETECTOR
+B
VR4510
AUDIO HEAD SW
IC4503 (AN3799S)
1/3 PG
MMV
FF
A.H.SW
CYL FG
SWITCHING PULSE GENERATOR (PHASE CONTROL)
SW1
SW2
SW3
SW4
A.H.SW
H.AMP.SW
P4506 3
MODE SELECT
SP Ⓛ (FROM P4502-16)
QR4516
QR4515
QR4514 QR4516
P4502 4
P4502 5
TIMING OF V.H.SW AND A.H.SW
TP4506 AUDIO H.SW
TP2001 VIDEO H.SW
13.2msec (90°)
REG 5V
Q4519
(PB: ON)
QR4503
V.EE Ⓗ
P5502 10
P5502 6
P5502 11
SW1
P5502 8
E.D.REC Ⓗ
P5502 13
SW2
P5502 3
PB5V
P5502 12
SW3
P5502 9
SW4
P5502 5
A.H.SW
P5502 7
H.AMP SW
TP4508 (ENV)
P5502 2
PB FM
Q5501
C5503
CUT THE DC VOLTAGE
P5501 11
P5501 12
A-R1 HEAD
QR5501
Q5505 (PB: ON)
QR5504
Q5504
Q5506
C5505
P5501 3
P5501 2
A-L1 HEAD
QR5502
Q5508 (PB: ON)
QR5505
Q5507
C5507
P5501 6
P5501 5
A-R2 HEAD
Q5510 (PB: ON)
Q5508
C5501
P5501 8
P5501 9
A-L2 HEAD
Q5502
Q5503 (PB: ON)
IC5501 (AN3311S)
VCC
AMP
H.AMP SW
HEAD AMP


VIDEO TAPE
A-R1 (26μm)
V-R1 (35μm)
V-L2 (35μm)
A-L2 (26μm)
FLYING ERASE HEAD
A-L1 (26μm)
V-L1 (35μm)
V-R2 (35μm)
A-R2 (26μm)

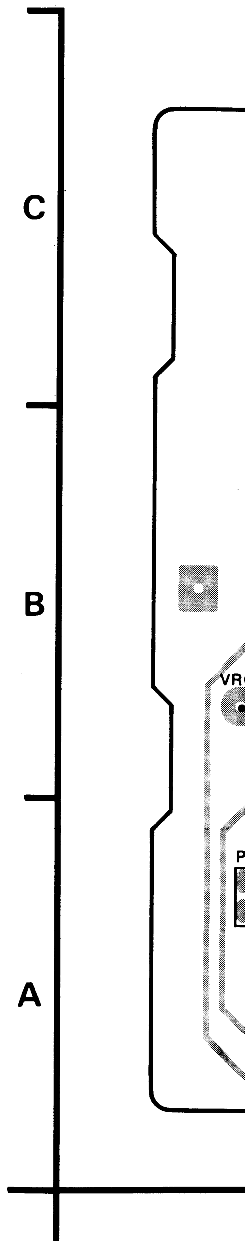
9-HEAD SYSTEM

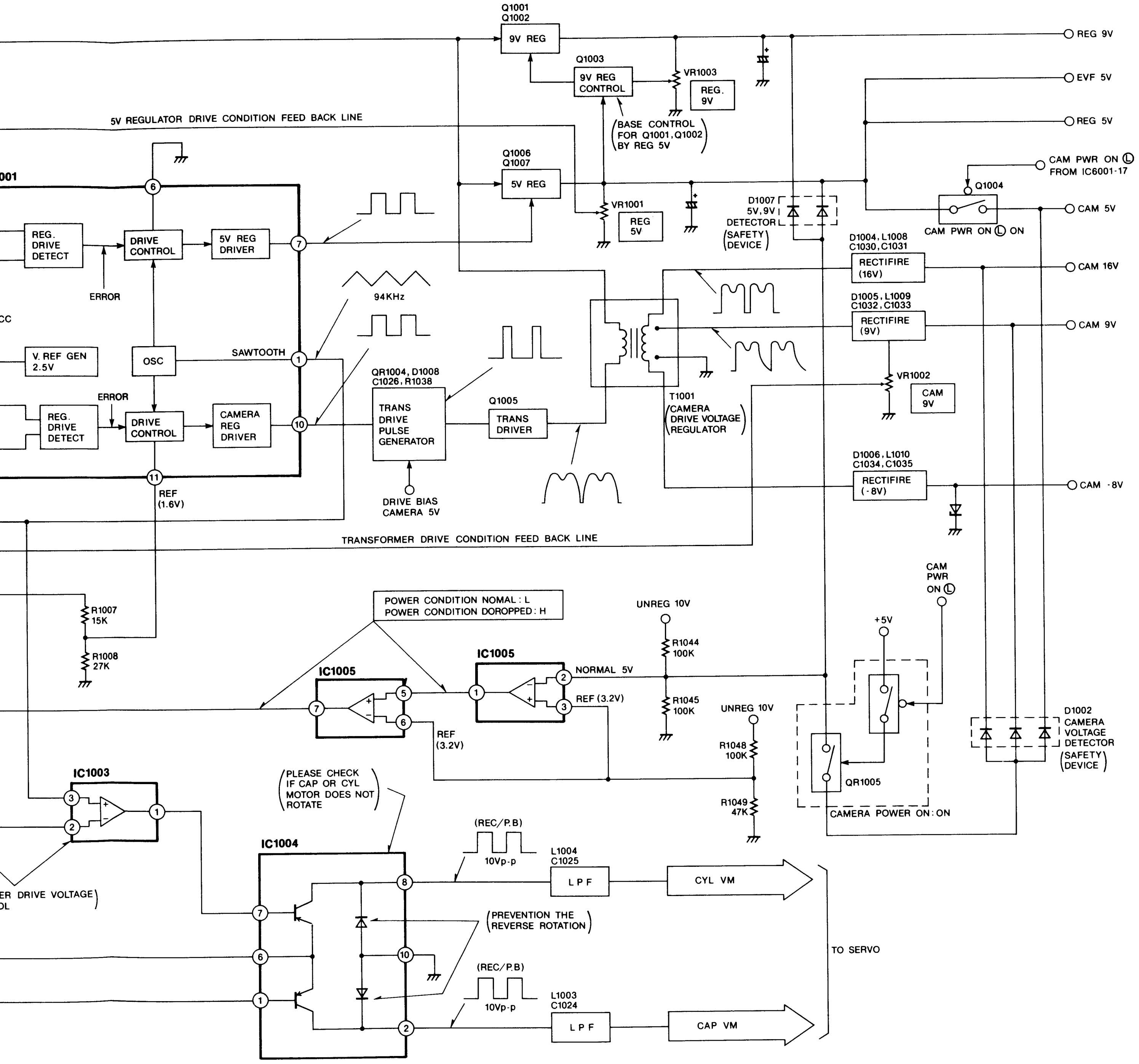
Next Page:
POWER SUPPLY &
CAMERA OPERATION Section

3-6. POWER SUPPLY BLOCK DIAGRAM


BATTERY
(+)
(−)
10V
DC JACK
R1046
(FUSE)
SYSTEM CONTROL SECTION
IC6001
5V
POWER SW
POWER SW ON Ⓛ 44
QR6016
POWER ON Ⓗ 16
IC6002
5V REG
VDD
57
58
SERIAL CLOCK 5
IC1003
BATTERY REMAINING DET 36
VR6001
UNDER CUT
QR1001
POWER ON : ON
UNREG 10V
(FOR OPERATION IC1005 (POWER DETECTOR))
5V REGULATOR DRIVE CONDITION FEED BACK LINE
IC1001
REG. DRIVE DETECT
DRIVE CONTROL
5V REG DRIVER
REF (1.2V)
ERROR
VCC
V. REF GEN 2.5V
OSC
SAWTOOTH
R1011 1800
R1012 1800
CAMERA REG DRIVER
REF (1.6V)
94KHz
Q1001
Q1002
9V REG
Q1003
9V REG CONTROL
VR1003
REG. 9V
(BASE CONTROL FOR Q1001, Q1002 BY REG 5V)
Q1006
Q1007
5V REG
VR1001
REG 5V
D1007
5V, 9V
DETECTOR
(SAFETY DEVICE)
REG 9V
EVF 5V
REG 5V
CAM PWR ON Ⓛ
FROM IC6001-17
Q1004
CAM 5V
CAM PWR ON Ⓛ ON
D1004, L1008
C1030, C1031
RECTIFIRE (16V)
CAM 16V
D1005, L1009
C1032, C1033
RECTIFIRE (9V)
CAM 9V
VR1002
CAM 9V
T1001
(CAMERA DRIVE VOLTAGE REGULATOR)
QR1004, D1008
C1026, R1038
TRANS DRIVE PULSE GENERATOR
Q1005
TRANS DRIVER
DRIVE BIAS CAMERA 5V
D1006, L1010
C1034, C1035
RECTIFIRE (−8V)
CAM −8V
TRANSFORMER DRIVE CONDITION FEED BACK LINE
R1007 15K
R1008 27K
POWER CONDITION NOMAL : L
POWER CONDITION DOROPPED : H
IC1005
NORMAL 5V
REF (3.2V)
UNREG 10V
R1044 100K
R1045 100K
R1048 100K
R1049 47K
CAM PWR ON Ⓛ
+5V
QR1005
CAMERA POWER ON : ON
D1002
CAMERA VOLTAGE DETECTOR
(SAFETY DEVICE)
SERVO SECTION
IC2601
CYL PWR REG
ERROR TORQUE VOLTAGE
ERROR DETECT
REF (2.5V)
CYL VS
IC1002
IC1003
(CYLINDER DRIVE VOLTAGE CONTROL)
(PLEASE CHECK IF CAP OR CYL MOTOR DOES NOT ROTATE)
IC1004
(REC/P.B)
10Vp-p
L1004
C1025
LPF
CYL VM
(PREVENTION THE REVERSE ROTATION)
TO SERVO
L1003
C1024
CAP VM
IC2602
DET
CAP SW
M3 M2 M1
(CAP MOTOR)

3-7. CAMERA
(VEP2028

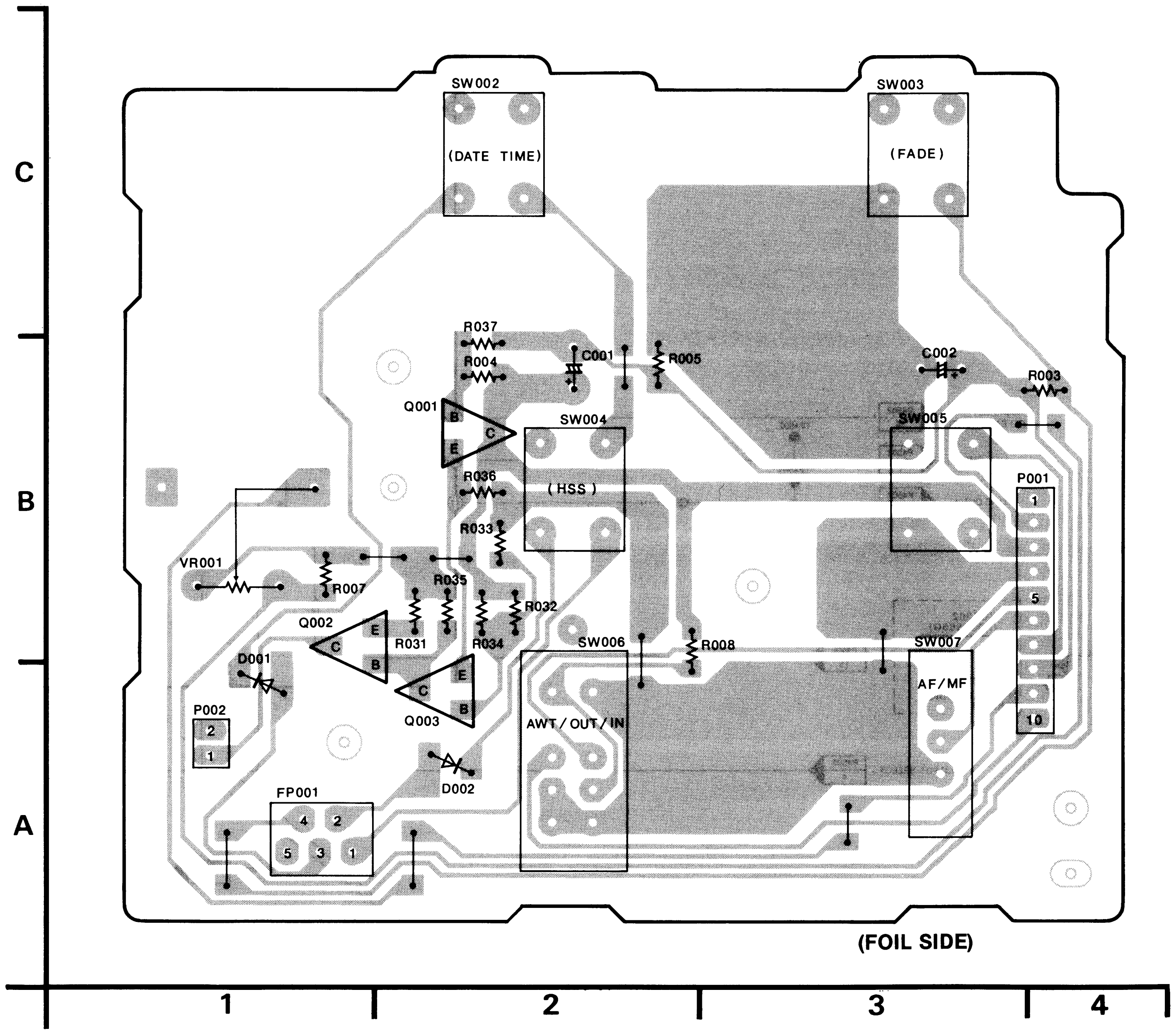



Q1001
Q1002
9V REG
Q1003
9V REG CONTROL
VR1003
REG. 9V
(BASE CONTROL FOR Q1001, Q1002 BY REG 5V)
REG 9V
EVF 5V
REG 5V
5V REGULATOR DRIVE CONDITION FEED BACK LINE
Q1006
Q1007
5V REG
VR1001
REG 5V
D1007 5V, 9V DETECTOR (SAFETY DEVICE)
CAM PWR ON Ⓛ FROM IC6001-17
Q1004
CAM PWR ON Ⓛ ON
CAM 5V
001
REG. DRIVE DETECT
DRIVE CONTROL
5V REG DRIVER
ERROR
94KHz
D1004, L1008 C1030, C1031
RECTIFIRE (16V)
CAM 16V
D1005, L1009 C1032, C1033
RECTIFIRE (9V)
CAM 9V
CC
V. REF GEN 2.5V
OSC
SAWTOOTH
ERROR
REG. DRIVE DETECT
DRIVE CONTROL
CAMERA REG DRIVER
QR1004, D1008 C1026, R1038
TRANS DRIVE PULSE GENERATOR
Q1005
TRANS DRIVER
T1001 (CAMERA DRIVE VOLTAGE REGULATOR)
VR1002
CAM 9V
D1006, L1010 C1034, C1035
RECTIFIRE (-8V)
CAM -8V
REF (1.6V)
DRIVE BIAS CAMERA 5V
TRANSFORMER DRIVE CONDITION FEED BACK LINE
CAM PWR ON Ⓛ
R1007 15K
R1008 27K
POWER CONDITION NOMAL: L
POWER CONDITION DOROPPED: H
UNREG 10V
R1044 100K
+5V
IC1005
IC1005
NORMAL 5V
REF (3.2V)
R1045 100K
UNREG 10V
REF (3.2V)
R1048 100K
R1049 47K
QR1005
D1002 CAMERA VOLTAGE DETECTOR (SAFETY DEVICE)
CAMERA POWER ON: ON
IC1003
(PLEASE CHECK IF CAP OR CYL MOTOR DOES NOT ROTATE)
IC1004
(REC/P.B)
10Vp-p
L1004 C1025
LPF
CYL VM
(PREVENTION THE REVERSE ROTATION)
TO SERVO
(REC/P.B)
10Vp-p
L1003 C1024
LPF
CAP VM
ER DRIVE VOLTAGE)
OL

3-7. CAMERA OPERATION C.B.A.
(VEP20285A: NV-MC30E/B/EP/EW) (VEP20285B: NV-MC30EG)

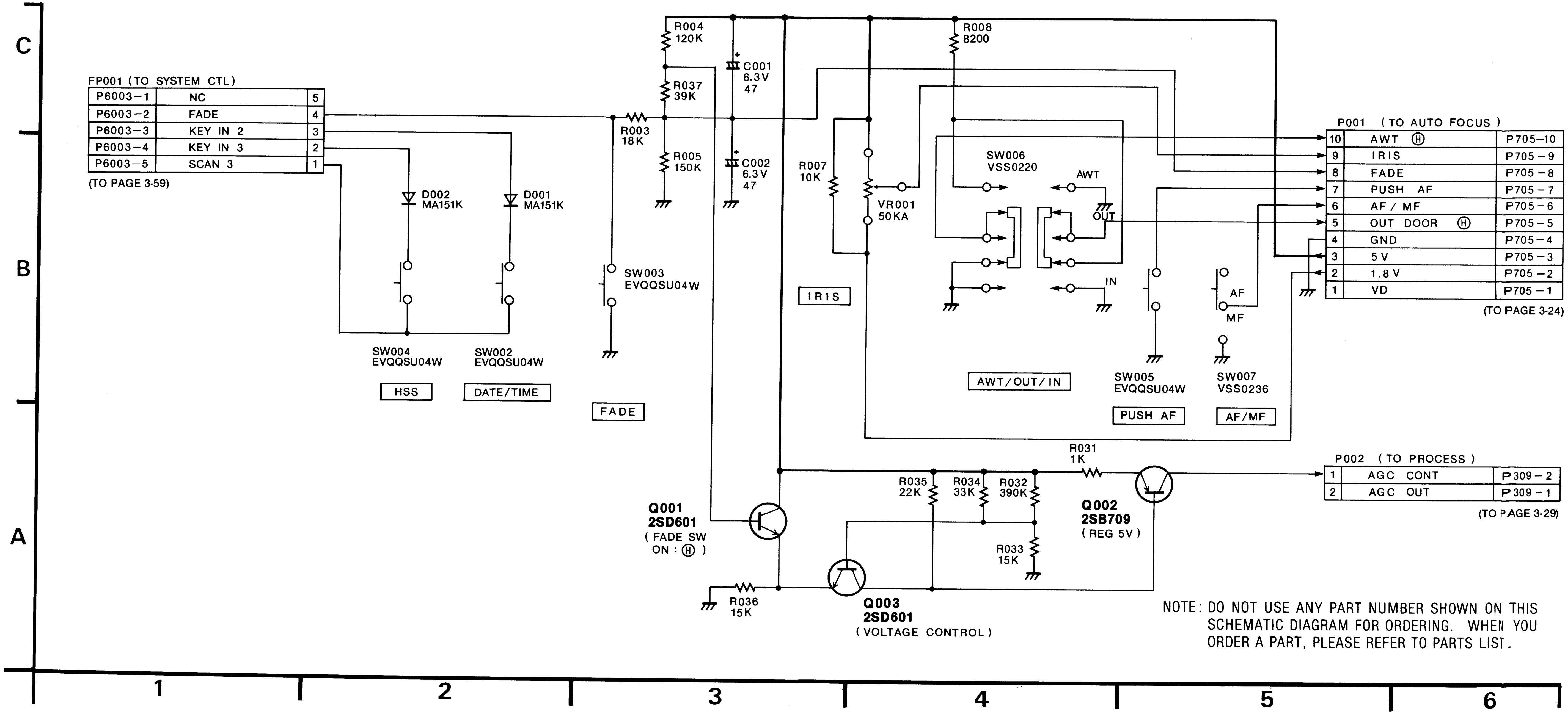
CAMERA OPERATION C.B.A.			
Transistor		**Connector**	
Q001	B-2	FP001	A-1
Q002	B-1	P001	B-4
Q003	A-2	P002	A-1
Adjustment			
VR001	B-1		

ADDRESS INFORMATION


C
B
A
1
2
3
4
SW002
(DATE TIME)
SW003
(FADE)
R037
R004
C001
R005
C002
R003
Q001
SW004
(HSS)
SW005
P001
R036
R033
VR001
R007
R035
R032
Q002
R031
R034
SW006
R008
SW007
AF/MF
D001
Q003
AWT/OUT/IN
P002
D002
FP001
1
5
10
2
1
4
2
5
3
1

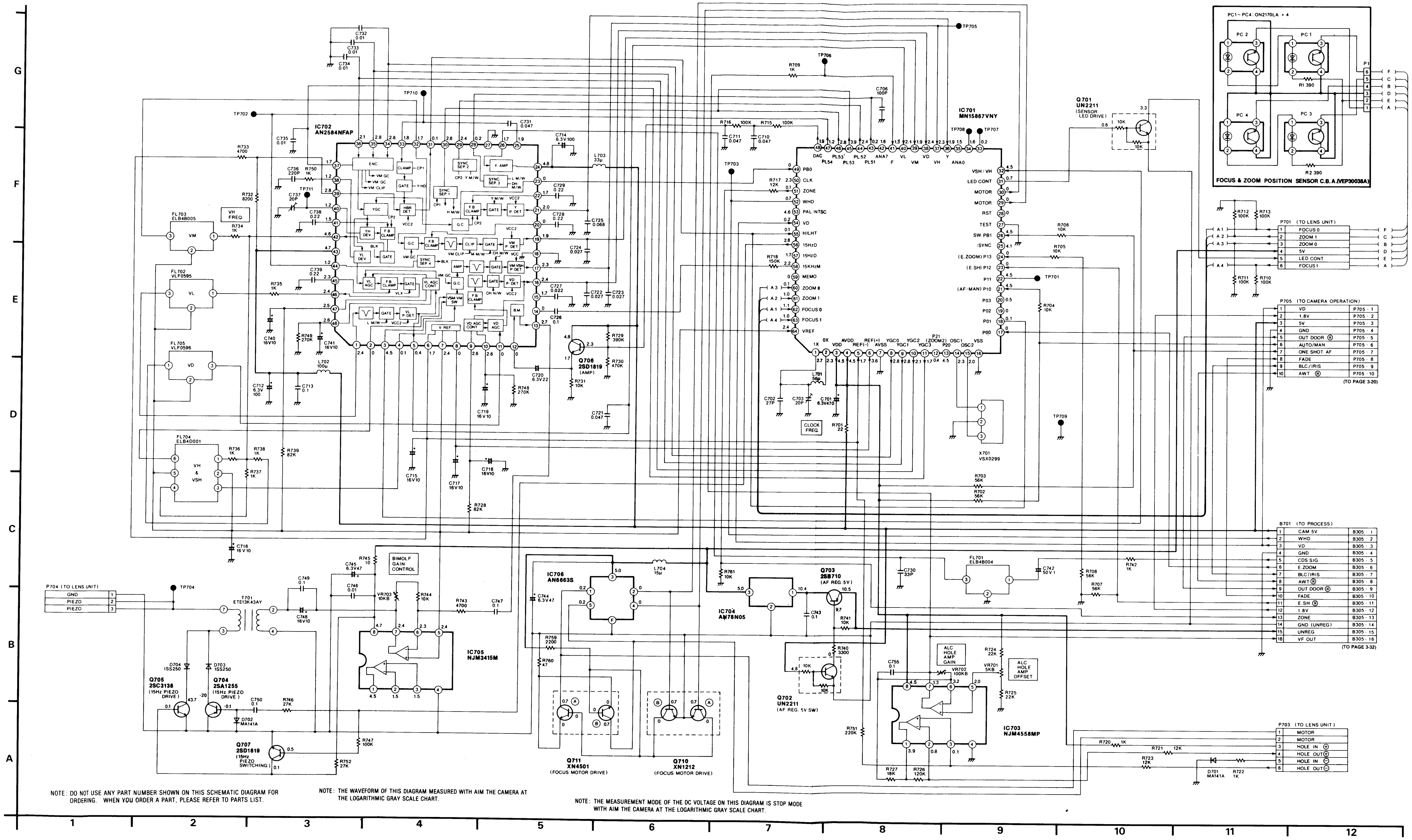
(FOIL SIDE)

3-8. CAMERA OPERATION SCHEMATIC DIAGRAM


C
B
A
1
2
3
4
5
6
FP001 (TO SYSTEM CTL)
P6003−1 NC 5
P6003−2 FADE 4
P6003−3 KEY IN 2 3
P6003−4 KEY IN 3 2
P6003−5 SCAN 3 1
(TO PAGE 3-59)
D002 MA151K
D001 MA151K
SW004 EVQQSU04W
SW002 EVQQSU04W
HSS
DATE/TIME
R003 18K
SW003 EVQQSU04W
FADE
R004 120K
R037 39K
R005 150K
C001 6.3V 47
C002 6.3V 47
R007 10K
VR001 50KA
IRIS
R008 8200
SW006 VSS0220
AWT
OUT
IN
AWT/OUT/IN
SW005 EVQQSU04W
PUSH AF
AF
MF
SW007 VSS0236
AF/MF
P001 (TO AUTO FOCUS)
10 AWT Ⓗ P705−10
9 IRIS P705−9
8 FADE P705−8
7 PUSH AF P705−7
6 AF / MF P705−6
5 OUT DOOR Ⓗ P705−5
4 GND P705−4
3 5V P705−3
2 1.8V P705−2
1 VD P705−1
(TO PAGE 3-24)
R031 1K
R035 22K
R034 33K
R032 390K
R033 15K
Q001 2SD601 (FADE SW ON : Ⓗ)
Q002 2SB709 (REG 5V)
Q003 2SD601 (VOLTAGE CONTROL)
R036 15K
P002 (TO PROCESS)
1 AGC CONT P309−2
2 AGC OUT P309−1
(TO PAGE 3-29)

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-9. AUTO FOCUS SCHEMATIC DIAGRAM

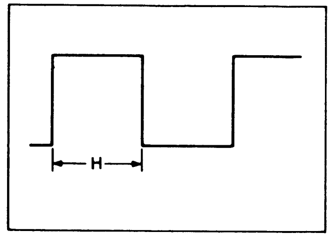

IC702 AN2584NFAP
IC701 MN15867VNY
IC703 NJM4558MP
IC704 AN78N05
IC705 NJM3415M
IC706 AN6663S
Q701 UN2211 (SENSOR LED DRIVE)
Q702 UN2211 (AF REG. 5V SW)
Q703 2SB710 (AF REG. 5V)
Q704 2SA1255 (15Hz PIEZO DRIVE)
Q705 2SC3138 (15Hz PIEZO DRIVE)
Q706 2SD1819 (AMP)
Q707 2SD1819 (15Hz PIEZO SWITCHING)
Q710 XN1212 (FOCUS MOTOR DRIVE)
Q711 XN4501 (FOCUS MOTOR DRIVE)
D701 MA141A
D702 MA141A
D703 1SS250
D704 1SS250
T701 ETE13K43AY
FL701 ELB4B004
FL702 VLF0595
FL703 ELB4B005
FL704 ELB4D001
FL705 VLF0596
X701 VSX0299
TP702
TP703
TP704
TP705
TP706
TP707
TP708
TP709
TP710
TP711
PC1~PC4: ON2170LA × 4
FOCUS & ZOOM POSITION SENSOR C.B.A.(VEP30038A)
R1 390
R2 390
P701 (TO LENS UNIT)
1 FOCUS 0
2 ZOOM 1
3 ZOOM 0
4 5V
5 LED CONT
6 FOCUS 1
P705 (TO CAMERA OPERATION)
1 VD P705 · 1
2 1.8V P705 · 2
3 5V P705 · 3
4 GND P705 · 4
5 OUT DOOR Ⓗ P705 · 5
6 AUTO/MAN P705 · 6
7 ONE SHOT AF P705 · 7
8 FADE P705 · 8
9 BLC/IRIS P705 · 9
10 AWT Ⓗ P705 · 10
(TO PAGE 3-20)
B701 (TO PROCESS)
1 CAM 5V B305 · 1
2 WHD B305 · 2
3 VD B305 · 3
4 GND B305 · 4
5 CDS SIG B305 · 5
6 E.ZOOM B305 · 6
7 BLC/IRIS B305 · 7
8 AWT Ⓗ B305 · 8
9 OUT DOOR Ⓗ B305 · 9
10 FADE B305 · 10
11 E.SH Ⓗ B305 · 11
12 1.8V B305 · 12
13 ZONE B305 · 13
14 GND (UNREG) B305 · 14
15 UNREG B305 · 15
16 VF OUT B305 · 16
(TO PAGE 3-32)
P703 (TO LENS UNIT)
1 MOTOR
2 MOTOR
3 HOLE IN ⊕
4 HOLE OUT ⊕
5 HOLE IN ⊖
6 HOLE OUT ⊖
P704 (TO LENS UNIT)
GND
PIEZO
PIEZO
BIMOLF GAIN CONTROL
ALC HOLE AMP GAIN
ALC HOLE AMP OFFSET
CLOCK FREQ
VH FREQ
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

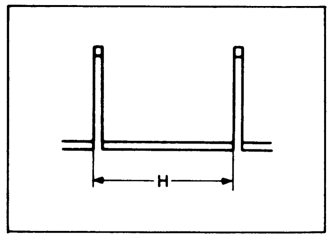
NOTE: THE WAVEFORM OF THIS DIAGRAM MEASURED WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

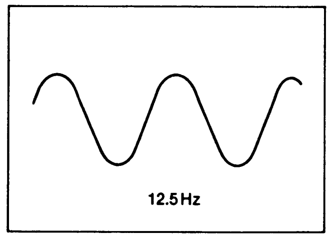
AUTO FOCUS CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 700 Series)



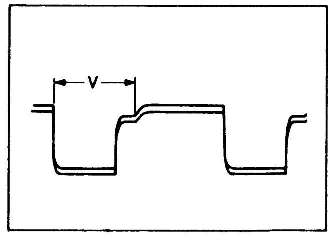
TP702 STOP
2.0V/20µsec. div. 4.5Vp-p



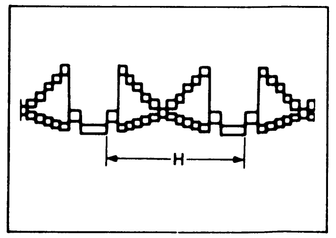
TP703 STOP
2.0V/20µsec. div. 5.0Vp-p



TP704 STOP
5.0V/20msec. div. 11Vp-p
(Convered with Lens Cap)



TP705 STOP
0.5V/5msec. div. 1.1Vp-p

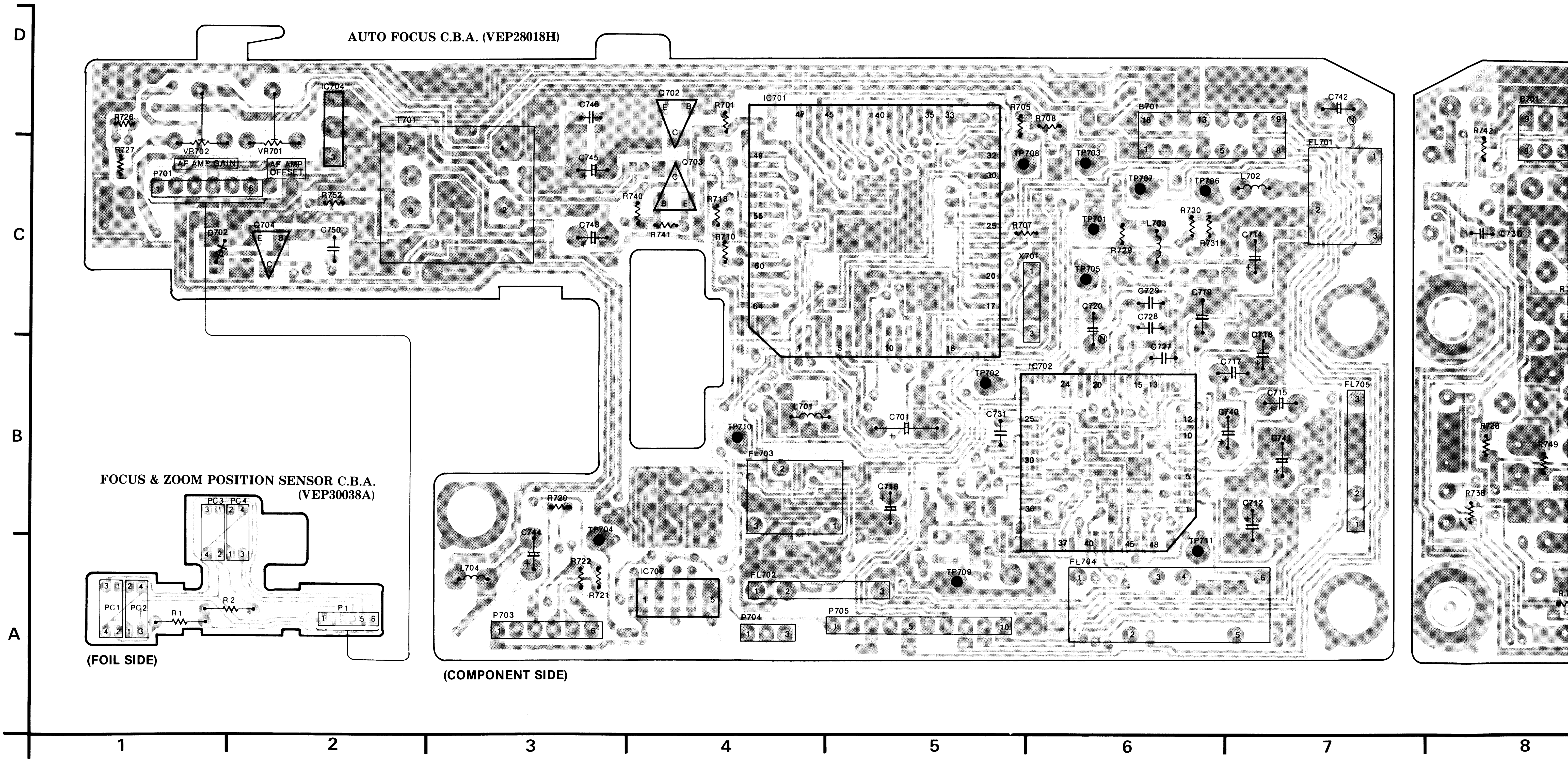


TP710 STOP
0.1V/20µsec. div. 0.4Vp-p

TP711 STOP
0.2V/20µsec. div. 0.7Vp-p

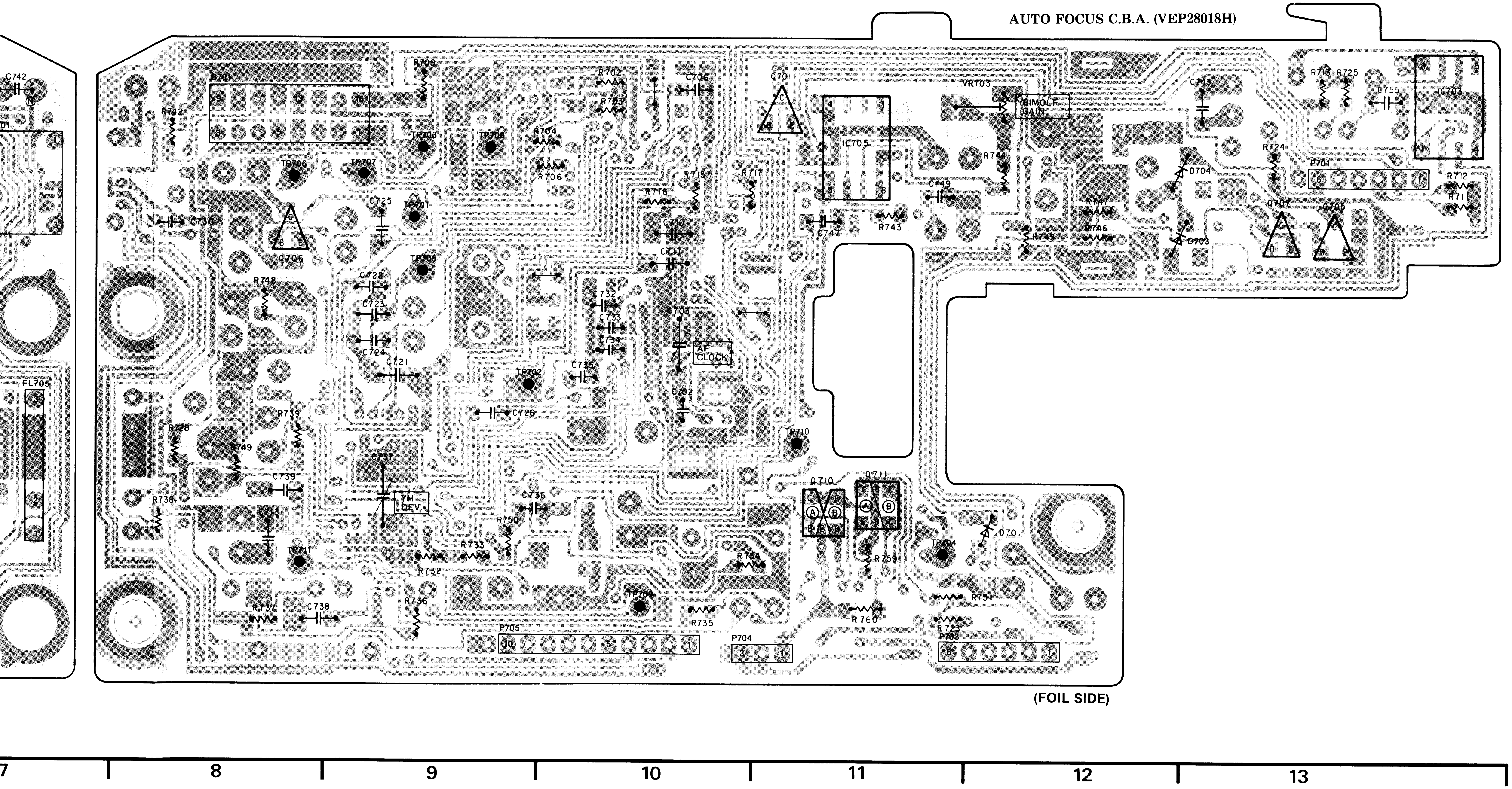
Back Page:
CAMERA OPERATION Section

3-10. AUTO FOCUS C.B.A. (VEP28018H)



AUTO FOCUS C.B.A. (VEP28018H)
FOCUS & ZOOM POSITION SENSOR C.B.A. (VEP30038A)
(FOIL SIDE)
(COMPONENT SIDE)
D
C
B
A
1
2
3
4
5
6
7
8
R726
R727
VR702
VR701
AF AMP GAIN
AF AMP OFFSET
P701
IC704
T701
C746
C745
C748
Q702
Q703
Q704
D702
C750
R752
R701
R740
R741
R718
R710
IC701
R705
R708
R707
X701
TP708
TP703
TP707
TP706
TP701
TP705
TP702
TP710
TP704
TP709
TP711
B701
C742
FL701
L702
L703
R730
R731
R729
C714
C729
C728
C719
C720
C727
C718
C717
IC702
C715
C740
C741
C731
C701
L701
FL703
FL705
C716
C712
FL702
FL704
IC706
P703
P704
P705
L704
C744
R720
R722
R721
PC1
PC2
PC3
PC4
R1
R2
P1
R742
C730
R728
R749
R738

AUTO FOCUS C.B.A. (VEP28018H)


C742
R742
B701
9
13
16
8
5
1
R709
R702
R703
C706
Q701
C
B
E
VR703
BIMOLF GAIN
C743
R713
R725
C755
IC703
8
5
1
4
TP703
TP708
R704
R706
TP706
TP707
R715
R716
R717
IC705
4
5
8
R744
D704
R724
P701
6
1
R712
R711
C725
TP701
C710
C711
C749
C747
R743
R747
R746
R745
D703
Q707
Q705
C730
Q706
TP705
C722
C723
C724
C721
R748
C732
C733
C734
C703
AF CLOCK
C735
TP702
C702
C726
FL705
3
2
1
R739
R728
R749
C737
TP710
C739
C713
YH DEV.
C736
R750
R738
TP711
R733
R732
Q710
Q711
A
B
D701
TP704
R734
R759
R737
C738
R736
TP709
R735
R760
R751
R723
P705
10
P704
3
P703
7
8
9
10
11
12
13

(FOIL SIDE)

AUTO FOCUS C.B.A.	
Transistor	
Q701	D-11 Ⓕ
Q702	D-4 Ⓒ
Q703	C-4 Ⓒ
Q704	C-2 Ⓒ
Q705	C-13 Ⓕ
Q706	C-8 Ⓕ
Q707	C-13 Ⓕ
Q710	B-11 Ⓕ
Q711	B-11 Ⓕ
Integrated Circuit	
IC701	D-4 Ⓒ
IC702	B-6 Ⓒ
IC703	D-13 Ⓕ
IC704	D-2 Ⓒ
IC705	C-11 Ⓕ
IC706	A-4 Ⓒ
Test Point	
TP701	C-6 Ⓒ
TP701	C-9 Ⓕ
TP702	B-5 Ⓒ
TP702	B-9 Ⓕ
TP703	C-6 Ⓒ
TP703	C-9 Ⓕ
TP704	B-3 Ⓒ
TP704	B-11 Ⓕ
TP705	C-6 Ⓒ
TP705	C-9 Ⓕ
TP706	C-6 Ⓒ
TP706	C-8 Ⓕ
TP707	C-6 Ⓒ
TP707	C-9 Ⓕ
TP708	C-5 Ⓒ
TP708	C-9 Ⓕ
TP709	A-5 Ⓒ
TP709	A-10 Ⓕ
TP710	B-4 Ⓒ
TP710	B-11 Ⓕ
TP711	A-6 Ⓒ
TP711	A-8 Ⓕ
Adjustment	
VR701	C-2 Ⓒ
VR702	C-1 Ⓒ
VR703	D-11 Ⓕ
C703	C-10 Ⓕ
C737	B-9 Ⓕ
Connector	
B701	D-6 Ⓒ
B701	D-8 Ⓕ
P1	A-2 Ⓕ
P701	C-1 Ⓒ
P701	C-13 Ⓕ
P703	A-3 Ⓒ
P703	A-11 Ⓕ
P704	A-4 Ⓒ
P704	A-10 Ⓕ
P705	A-5 Ⓒ
P705	A-9 Ⓕ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

3-11. PROCESS SCHEMATIC DIAGRAM

⬅□ PRE VIDEO SIGNAL

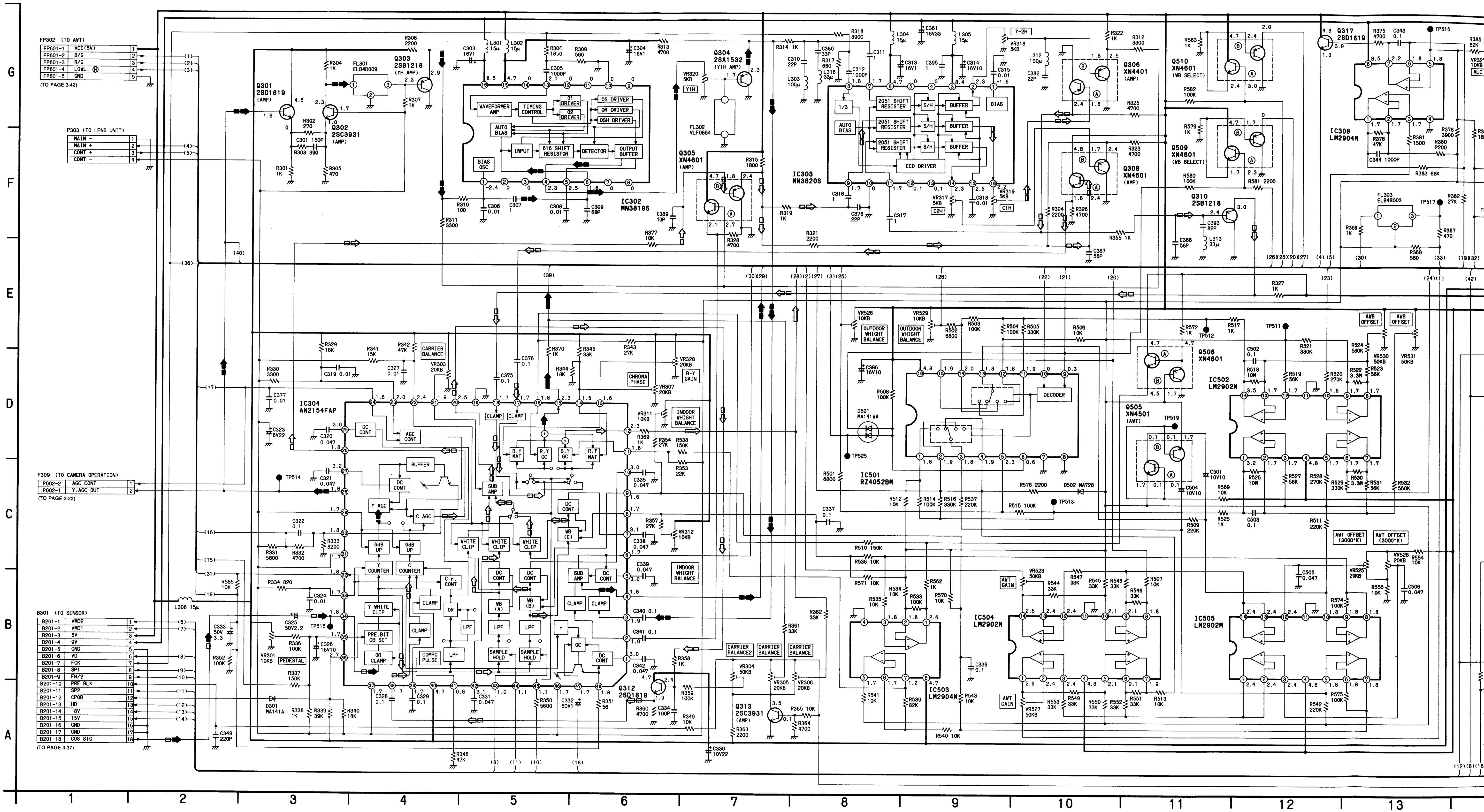
⬅■ LUMINANCE SIGNAL

⬅■ R-Y SIGNAL

⇦■ CHROMINANCE SIGNAL

⇦□ B-Y/R-Y COMPOSITE SIGNAL

⇦ B-Y SIGNAL

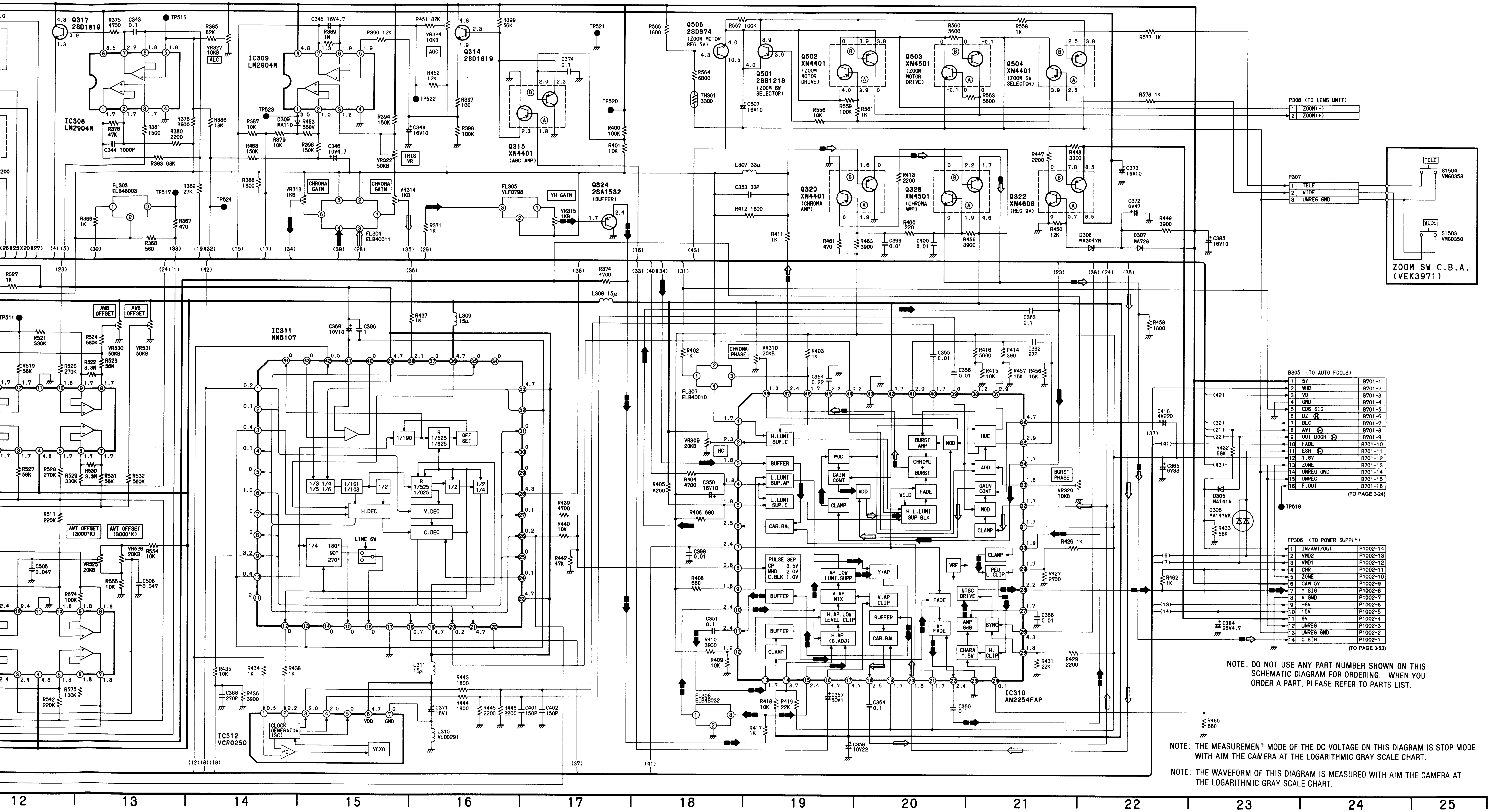


FP302 (TO AWT)
FP601-1 VCC(5V)
FP601-2 B/G
FP601-3 R/G
FP601-4 LOWL. Ⓗ
FP601-5 GND
(TO PAGE 3-42)
P303 (TO LENS UNIT)
MAIN -
MAIN +
CONT +
CONT -
P309 (TO CAMERA OPERATION)
P002-2 AGC CONT
P002-1 Y.AGC OUT
(TO PAGE 3-22)
B301 (TO SENSOR)
B201-1 VMD2
B201-2 VMD1
B201-3 5V
B201-4 9V
B201-5 GND
B201-6 VD
B201-7 FCK
B201-8 SP1
B201-9 FH/2
B201-10 PRE BLK
B201-11 SP2
B201-12 CPOB
B201-13 HD
B201-14 -8V
B201-15 15V
B201-16 GND
B201-17 GND
B201-18 COS SIG
(TO PAGE 3-37)
Q301 2SD1819 (AMP)
Q302 2SC3931 (AMP)
Q303 2SB1218 (YH AMP)
FL301 ELB4D009
IC302 MN3819S
WAVEFORMER AMP
TIMING CONTROL
01 DRIVER
02 DRIVER
OS DRIVER
OR DRIVER
OSH DRIVER
AUTO BIAS
INPUT
616 SHIFT RESISTOR
DETECTOR
OUTPUT BUFFER
BIAS OSC
Q304 2SA1532 (Y1H AMP)
Q305 XN4601 (AMP)
FL302 VLF0664
IC303 MN3820S
2051 SHIFT RESISTER
S/H
BUFFER
BIAS
CCD DRIVER
1/3
Q306 XN4401 (AMP)
Q308 XN4601 (AMP)
Q510 XN4601 (WB SELECT)
Q509 XN4601 (WB SELECT)
Q310 2SB1218
Q317 2SD1819
IC308 LM2904M
FL303 ELB4B003
IC304 AN2154FAP
CARRIER BALANCE
CHROMA PHASE
B-Y GAIN
INDOOR WHIGHT BALANCE
DC CONT
AGC CONT
BUFFER
Y AGC
C AGC
6dB UP
Y COUNTER
C COUNTER
Y WHITE CLIP
PRE.BIT OB SET
OB CLAMP
COMPO PULSE
CLAMP
OR
LPF
WB (A)
WB (B)
WB (C)
SAMPLE HOLD
SUB AMP
WHITE CLIP
B.Y MAT
R.Y GC
B.Y GC
R.Y MAT
GC
PEDESTAL
Q312 2SD1819
Q313 2SC3931 (AMP)
D301 MA141A
L306 15μ
OUTDOOR WHIGHT BALANCE
IC501 RZ4052BM
DECODER
D501 MA141WA
D502 MA728
Q508 XN4601
Q505 XN4501 (AWT)
IC502 LM2902M
IC503 LM2904M
IC504 LM2902M
IC505 LM2902M
AWB OFFSET
AWT OFFSET (3000°K)
AWT GAIN
CARRIER BALANCE2
TP511
TP512
TP513
TP514
TP515
TP516
TP517
TP519
TP525
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13

Back Page:
AUTO FOCUS Section

AL

AL


Q317 2SD1819
IC308 LM2904M
IC309 LM2904M
Q314 2SD1819
Q315 XN4401 (AGC AMP)
Q324 2SA1532 (BUFFER)
FL303 ELB48003
FL304 ELB40C011
FL305 VLF0798
CHROMA GAIN
IRIS VR
ALC
AGC
YH GAIN
TP516
TP517
TP520
TP521
TP522
TP523
TP524
Q506 2SD874 (ZOOM MOTOR REG 5V)
Q501 2SB1218 (ZOOM SW SELECTOR)
Q502 XN4401 (ZOOM MOTOR DRIVE)
Q503 XN4501 (ZOOM MOTOR DRIVE)
Q504 XN4401 (ZOOM SW SELECTOR)
Q320 XN4401 (CHROMA AMP)
Q328 XN4501 (CHROMA AMP)
Q322 XN4608 (REG 9V)
D308 MA3047M
D307 MA728
P308 (TO LENS UNIT)
1 ZOOM(-)
2 ZOOM(+)
P307
1 TELE
2 WIDE
3 UNREG GND
TELE
WIDE
S1504 VMG0358
S1503 VMG0358
ZOOM SW C.B.A. (VEK3971)
AWB OFFSET
AWT OFFSET (3000°K)
TP511
IC311 MN5107
1/190
R 1/525 1/625
OFF SET
1/3 1/4 1/5 1/6
1/101 1/103
1/2
H.DEC
V.DEC
C.DEC
1/4
180° 90° 270°
LINE SW
IC312 VCR0250
CLOCK GENERATOR (SC)
PC
VCXO
VDD
GND
L311 15µ
L310 VLD0291
L308 15µ
L309 15µ
L307 33µ
CHROMA PHASE
FL307 ELB40010
FL308 ELB4B032
H.LUMI SUP.C
HC
BUFFER
L.LUMI SUP.AP
L.LUMI SUP.C
CAR.BAL
PULSE SEP CP 3.5V WHD 2.0V C.BLK 1.0V
AP.LOW LUMI.SUPP
Y+AP
V.AP MIX
V.AP CLIP
H.AP.LOW LEVEL CLIP
H.AP. (G.ADJ)
CLAMP
MOD
GAIN CONT
ADD
FADE
WILD
H L.LUMI SUP BLK
BURST AMP
CHROMI + BURST
HUE
BURST PHASE
VRF
PED L.CLIP
NTSC DRIVE
AMP 6dB
SYNC
WH FADE
CHARA Y.SW
H. CLIP
IC310 AN2254FAP
D305 MA141A
D306 MA141WK
TP518
B305 (TO AUTO FOCUS)
1 5V B701-1
2 WHD B701-2
3 VD B701-3
4 GND B701-4
5 CDS SIG B701-5
6 DZ Ⓗ B701-6
7 BLC B701-7
8 AWT Ⓗ B701-8
9 OUT DOOR Ⓗ B701-9
10 FADE B701-10
11 ESH Ⓗ B701-11
12 1.8V B701-12
13 ZONE B701-13
14 UNREG GND B701-14
15 UNREG B701-15
16 F.OUT B701-16
(TO PAGE 3-24)
FP306 (TO POWER SUPPLY)
1 IN/AWT/OUT P1002-14
2 VMD2 P1002-13
3 VMD1 P1002-12
4 CHR P1002-11
5 ZONE P1002-10
6 CAM 5V P1002-9
7 Y SIG P1002-8
8 V GND P1002-7
9 -8V P1002-6
10 15V P1002-5
11 9V P1002-4
12 UNREG P1002-3
13 UNREG GND P1002-2
14 C SIG P1002-1
(TO PAGE 3-53)
12
13
14
15
16
17
18
19
20
21
22
23
24
25

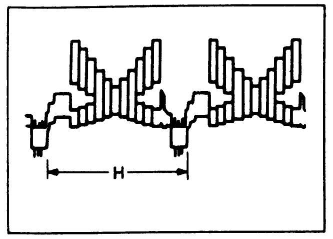
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

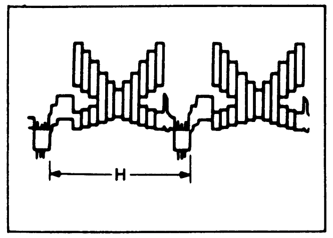
NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

3-12. PROCESS C.B.A. (VEP23089E)

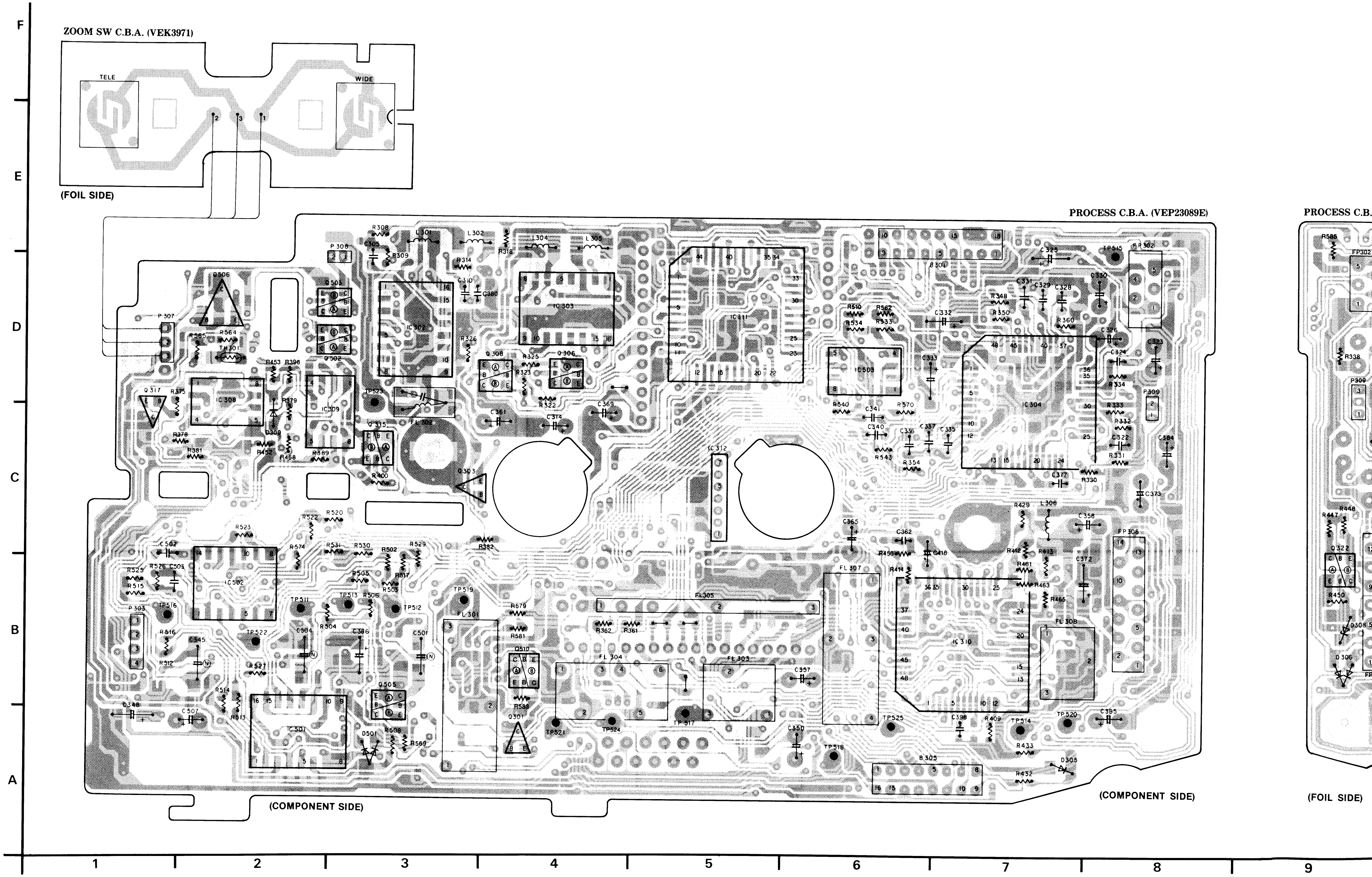
PROCESS CIRCUIT TP (Test Point)
WAVE FORM (REF. NO. 500 Series)



TP514 STOP
0.1V/20µsec. div. 0.32Vp-p

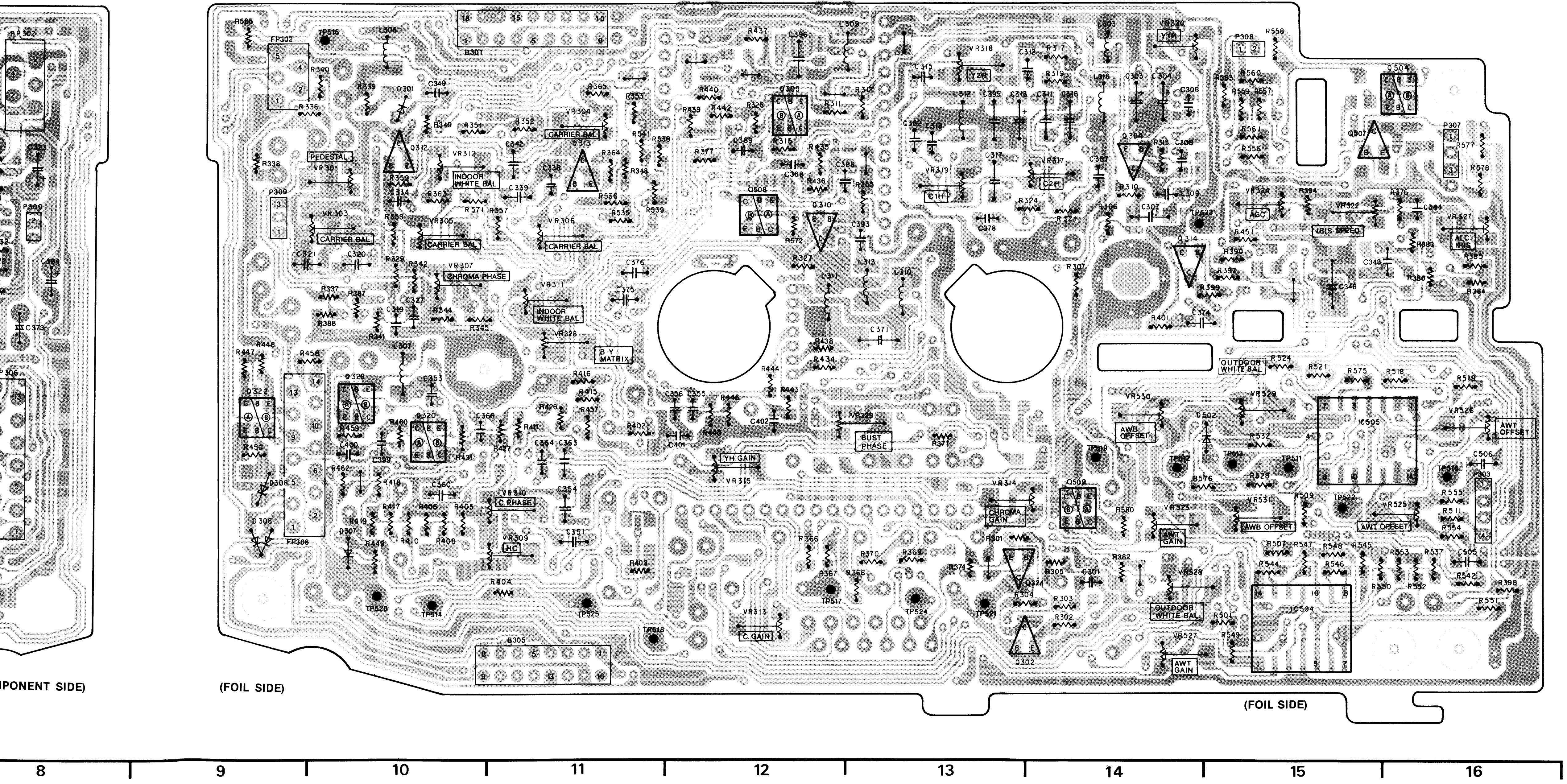


TP515 STOP
0.1V/20µsec. div. 0.5Vp-p


ZOOM SW C.B.A. (VEK3971)
TELE
WIDE
(FOIL SIDE)
PROCESS C.B.A. (VEP23089E)
(COMPONENT SIDE)
PROCESS C.B.
(FOIL SIDE)
IC301
IC302
IC303
IC304
IC308
IC309
IC310
IC311
IC312
IC501
IC502
IC503
FL301
FL302
FL303
FL304
FL305
FL306
FL307
FL308
TP511
TP512
TP513
TP514
TP515
TP516
TP517
TP518
TP519
TP520
TP521
TP522
TP523
TP524
TP525
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

.B.A. (VEP23089E)

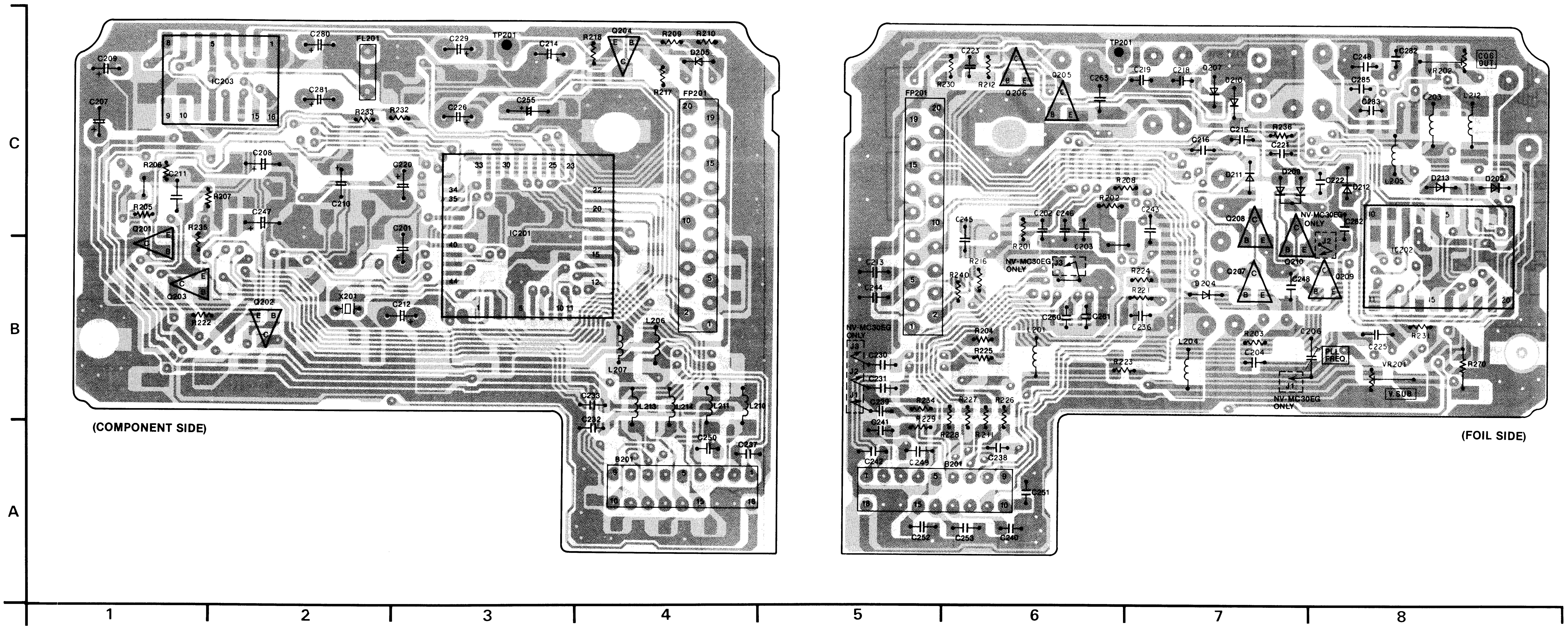
PROCESS C.B.A. (VEP23089E)

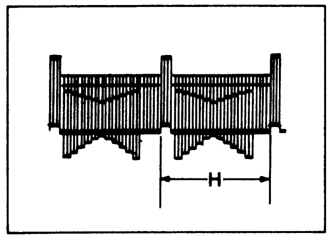

PONENT SIDE)
(FOIL SIDE)
(FOIL SIDE)
PEDESTAL
CARRIER BAL
INDOOR WHITE BAL
CHROMA PHASE
B-Y MATRIX
YH GAIN
BUST PHASE
C PHASE
HC
C GAIN
Y2H
Y1H
C2H
C1H
AGC
IRIS SPEED
ALC IRIS
OUTDOOR WHITE BAL
AWB OFFSET
AWT OFFSET
AWT GAIN
CHROMA GAIN
IC505
IC504
B301
B305
FP302
FP306
P307
P308
P309
8
9
10
11
12
13
14
15
16

PROCESS C.B.A.	
Transistor	
Q301	A-4 Ⓒ
Q302	A-14 Ⓕ
Q303	C-3 Ⓒ
Q304	D-14 Ⓕ
Q305	D-12 Ⓕ
Q306	D-4 Ⓒ
Q308	D-4 Ⓒ
Q310	D-12 Ⓕ
Q312	D-10 Ⓕ
Q313	D-11 Ⓕ
Q314	C-14 Ⓕ
Q315	C-3 Ⓒ
Q317	D-1 Ⓒ
Q320	B-10 Ⓕ
Q322	C-9 Ⓕ
Q324	A-14 Ⓕ
Q328	C-10 Ⓕ
Q502	D-3 Ⓒ
Q503	D-3 Ⓒ
Q504	D-16 Ⓕ
Q505	B-3 Ⓒ
Q506	D-2 Ⓒ
Q507	D-15 Ⓕ
Q508	D-12 Ⓕ
Q509	B-14 Ⓕ
Q510	B-4 Ⓒ
Integrated Circuit	
IC302	D-3 Ⓒ
IC303	D-4 Ⓒ
IC304	C-7 Ⓒ
IC308	D-2 Ⓒ
IC309	C-3 Ⓒ
IC310	B-7 Ⓒ
IC311	D-5 Ⓒ
IC312	C-5 Ⓒ
IC501	A-2 Ⓒ
IC502	B-2 Ⓒ
IC503	D-6 Ⓒ
IC504	A-15 Ⓕ
IC505	B-15 Ⓕ
Test Point	
TP511	B-2 Ⓒ
TP511	B-14 Ⓕ
TP512	B-3 Ⓒ
TP512	B-14 Ⓕ
TP513	B-3 Ⓒ
TP513	B-14 Ⓕ
TP514	A-7 Ⓒ
TP514	A-10 Ⓕ
TP515	E-8 Ⓒ
TP515	E-10 Ⓕ
TP516	B-1 Ⓒ
TP516	B-16 Ⓕ
TP517	A-5 Ⓒ
TP517	A-12 Ⓕ
TP518	A-6 Ⓒ
TP518	A-11 Ⓕ
TP519	B-3 Ⓒ
TP519	B-14 Ⓕ
TP520	A-7 Ⓒ
TP520	A-10 Ⓕ
TP521	A-4 Ⓒ
TP521	A-13 Ⓕ
TP522	B-2 Ⓒ
TP522	B-14 Ⓕ
TP523	D-3 Ⓒ
TP523	D-14 Ⓕ
TP524	A-4 Ⓒ
TP524	A-13 Ⓕ
TP525	A-6 Ⓒ
TP525	A-11 Ⓕ
Adjustment	
VR301	D-10 Ⓕ
VR303	D-10 Ⓕ
VR304	D-11 Ⓕ
VR305	C-10 Ⓕ
VR306	C-11 Ⓕ
VR307	C-10 Ⓕ
VR309	B-11 Ⓕ
VR310	B-11 Ⓕ
VR311	C-11 Ⓕ
VR312	D-10 Ⓕ
VR313	A-12 Ⓕ
VR314	A-13 Ⓕ
VR315	B-12 Ⓕ
VR317	D-14 Ⓕ
VR318	D-13 Ⓕ
VR319	D-13 Ⓕ
VR320	E-14 Ⓕ
VR322	D-15 Ⓕ
VR324	D-15 Ⓕ
VR327	D-16 Ⓕ
VR328	C-11 Ⓕ
VR329	B-13 Ⓕ
VR523	B-14 Ⓕ
VR525	B-16 Ⓕ
VR526	B-16 Ⓕ
VR527	A-14 Ⓕ
VR528	B-14 Ⓕ
VR529	C-15 Ⓕ
VR530	C-14 Ⓕ
VR531	B-15 Ⓕ
Connector	
B301	D-7 Ⓒ
B301	D-10 Ⓕ
B305	A-6 Ⓒ
B305	A-11 Ⓕ
FP302	E-8 Ⓒ
FP302	D-9 Ⓕ
FP306	C-8 Ⓒ
FP306	D-9 Ⓕ
P307	D-1 Ⓒ
P307	D-16 Ⓕ
P308	E-3 Ⓒ
P308	E-15 Ⓕ
P309	D-8 Ⓒ
P309	D-9 Ⓕ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

3-14. SENSOR C.B.A. (VEP22082A: NV-MC30E/B/EP/EW) (VEP22082C: NV-MC30EG)


C
B
A
1
2
3
4
5
6
7
8
(COMPONENT SIDE)
(FOIL SIDE)
IC201
IC202
IC203
FP201
B201
TP201
FL201
X201
Q201
Q202
Q203
Q204
Q205
Q206
Q207
Q208
Q209
Q210
VR201
VR202
PLL FREQ
V.SUB
COS OUT
NV-MC30EG ONLY
L206
L207
L213
L214
L211
L210
L201
L204
L205
L212
L203
D202
D204
D205
D209
D210
D211
D212
D213
C206
C207
C209
C280
C281
C229
C214
C255
C226
C208
C211
C210
C220
C247
C201
C212
C233
C232
C250
C237
R206
R205
R207
R235
R222
R233
R232
R218
R209
R210
R217
R230
R212
R208
R202
R201
R216
R240
R224
R221
R204
R225
R223
R203
R236
R231
R270
R234
R229
R227
R228
R211
R226



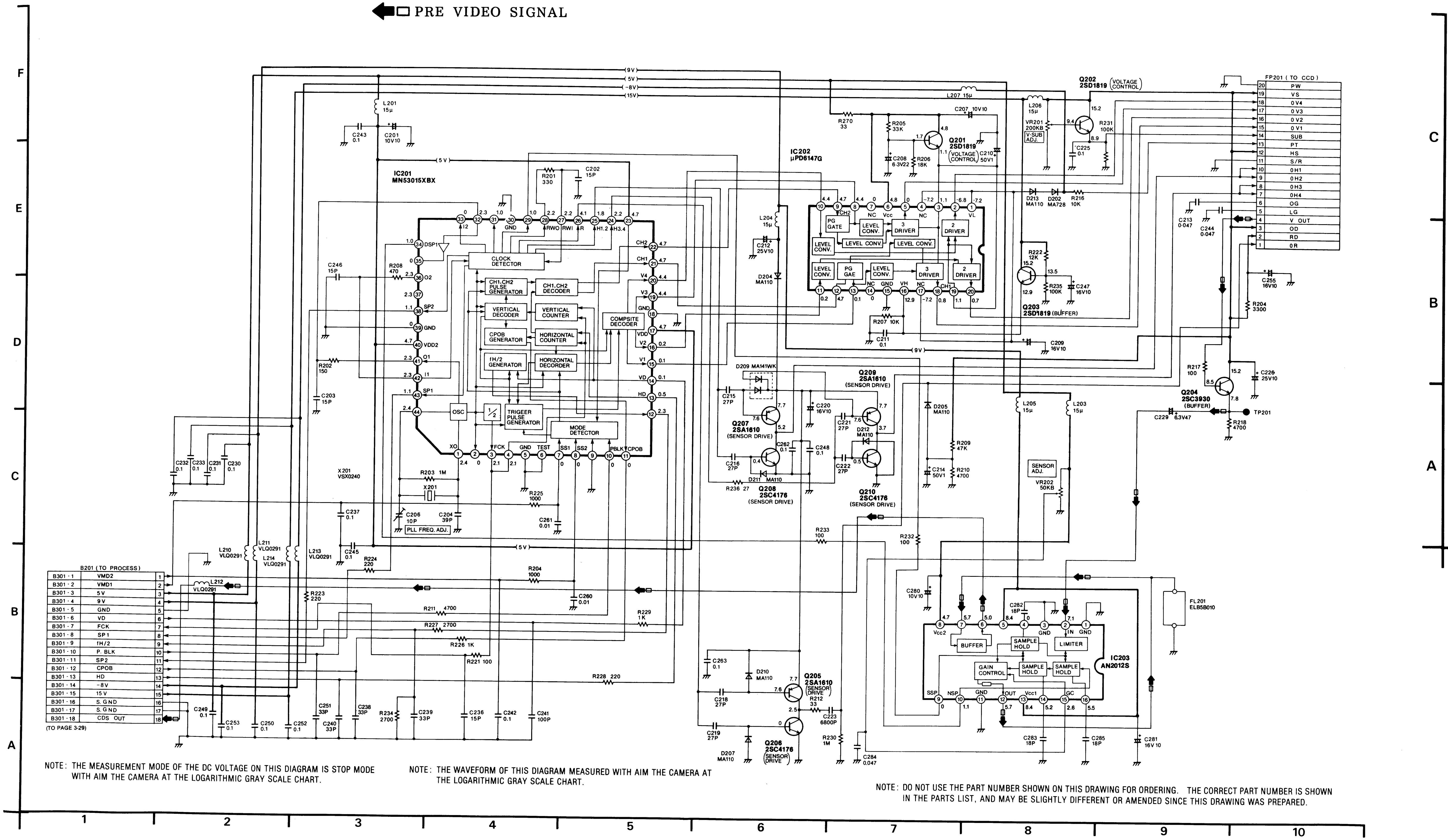
SENSOR CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 200 Series)

TP201 STOP
0.2V/20μsec. div. 0.6Vp-p

SENSOR C.B.A.			
Transistor		**Test Point**	
Q201	C-1 Ⓒ	TP201	C-3 Ⓒ
Q202	B-2 Ⓒ	TP201	C-6 Ⓕ
Q203	B-1 Ⓒ	**Adjustment**	
Q204	C-4 Ⓒ	C206	B-8 Ⓕ
Q205	C-6 Ⓕ	VR201	B-8 Ⓕ
Q206	C-6 Ⓕ	VR202	C-8 Ⓕ
Q207	B-7 Ⓕ	**Connector**	
Q208	C-7 Ⓕ	B201	A-4 Ⓒ
Q209	B-8 Ⓕ	B201	A-6 Ⓕ
Q210	B-7 Ⓕ	FP201	C-4 Ⓒ
Integrated Circuit		FP201	C-5 Ⓕ
IC201	C-3 Ⓒ		
IC202	B-8 Ⓕ		
IC203	C-2 Ⓒ		

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

3-13. SENSOR SCHEMATIC DIAGRAM


PRE VIDEO SIGNAL
(9V)
(5V)
(-8V)
(15V)
IC201
MN53015XBX
CLOCK DETECTOR
CH1,CH2 PULSE GENERATOR
CH1,CH2 DECODER
VERTICAL DECODER
VERTICAL COUNTER
CPOB GENERATOR
HORIZONTAL COUNTER
fH/2 GENERATOR
HORIZONTAL DECORDER
COMPSITE DECODER
OSC
1/2
TRIGEER PULSE GENERATOR
MODE DETECTOR
DSP1
O2
SP2
GND
VDD2
O1
I1
SP1
XO
FCK
TEST
SS1
SS2
PBLK
CPOB
CH2
CH1
V4
V3
VDD
V2
V1
VD
HD
RWO
RWI
R
H1.2
H3.4
I2
X201
VSX0240
PLL FREQ. ADJ.
IC202
μPD6147G
PG GATE
PG GAE
LEVEL CONV.
3 DRIVER
2 DRIVER
NC
Vcc
VL
VH
Q201
2SD1819
(VOLTAGE CONTROL)
Q202
2SD1819
(VOLTAGE CONTROL)
V-SUB ADJ.
VR201
200KB
Q203
2SD1819 (BUFFER)
Q204
2SC3930
(BUFFER)
TP201
Q205
2SA1610
(SENSOR DRIVE)
Q206
2SC4176
(SENSOR DRIVE)
Q207
2SA1610
(SENSOR DRIVE)
Q208
2SC4176
(SENSOR DRIVE)
Q209
2SA1610
(SENSOR DRIVE)
Q210
2SC4176
(SENSOR DRIVE)
D209 MA141WK
SENSOR ADJ.
VR202
50KB
IC203
AN2012S
BUFFER
SAMPLE HOLD
LIMITER
GAIN CONTROL
Vcc2
Vcc1
IN
OUT
SSP
NSP
GC
FL201
ELB5B010
B201 (TO PROCESS)
B301 - 1 VMD2 1
B301 - 2 VMD1 2
B301 - 3 5V 3
B301 - 4 9V 4
B301 - 5 GND 5
B301 - 6 VD 6
B301 - 7 FCK 7
B301 - 8 SP1 8
B301 - 9 fH/2 9
B301 - 10 P. BLK 10
B301 - 11 SP2 11
B301 - 12 CPOB 12
B301 - 13 HD 13
B301 - 14 -8V 14
B301 - 15 15V 15
B301 - 16 S. GND 16
B301 - 17 S. GND 17
B301 - 18 CDS OUT 18
(TO PAGE 3-29)
FP201 (TO CCD)
20 PW
19 VS
18 0V4
17 0V3
16 0V2
15 0V1
14 SUB
13 PT
12 HS
11 S/R
10 0H1
9 0H2
8 0H3
7 0H4
6 OG
5 LG
4 V OUT
3 OD
2 RD
1 0R
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10

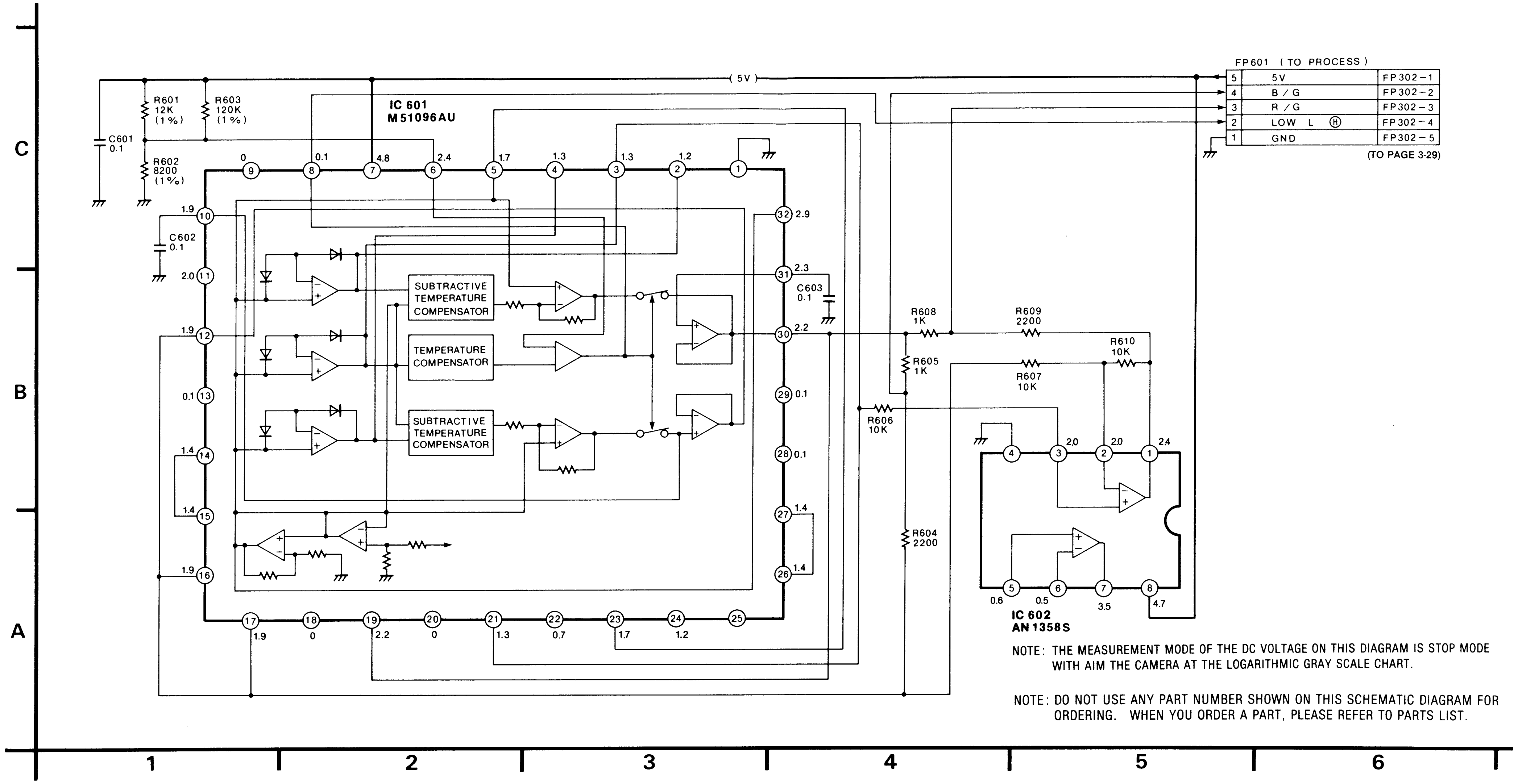
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: THE WAVEFORM OF THIS DIAGRAM MEASURED WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

Back Page:
PROCESS Section

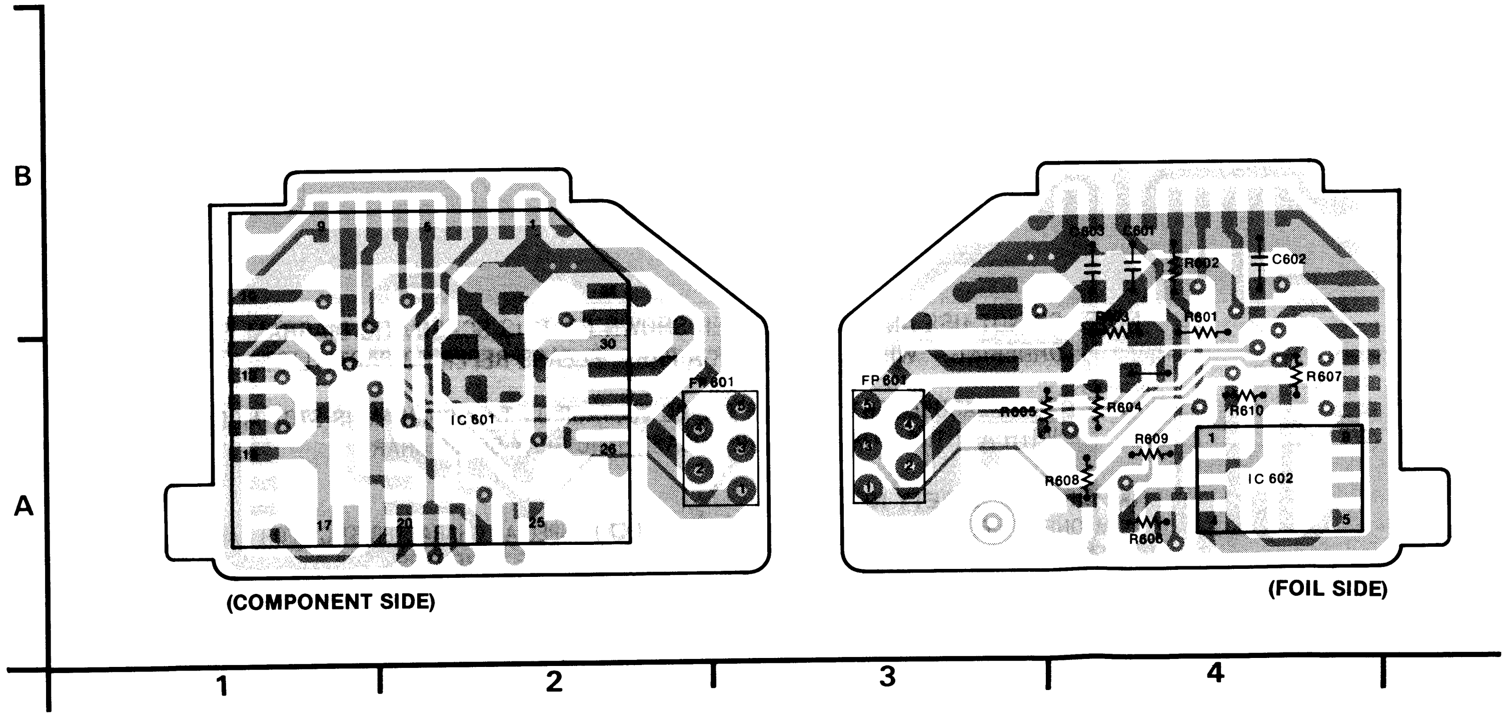
3-15. AWT (3) SCHEMATIC DIAGRAM


FP601 (TO PROCESS)
5 5V FP302-1
4 B / G FP302-2
3 R / G FP302-3
2 LOW L Ⓗ FP302-4
1 GND FP302-5
(TO PAGE 3-29)
5V
IC 601
M51096AU
R601 12K (1%)
R603 120K (1%)
R602 8200 (1%)
C601 0.1
C602 0.1
C603 0.1
SUBTRACTIVE TEMPERATURE COMPENSATOR
TEMPERATURE COMPENSATOR
SUBTRACTIVE TEMPERATURE COMPENSATOR
R604 2200
R605 1K
R606 10K
R607 10K
R608 1K
R609 2200
R610 10K
IC 602
AN1358S
C
B
A
1
2
3
4
5
6

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

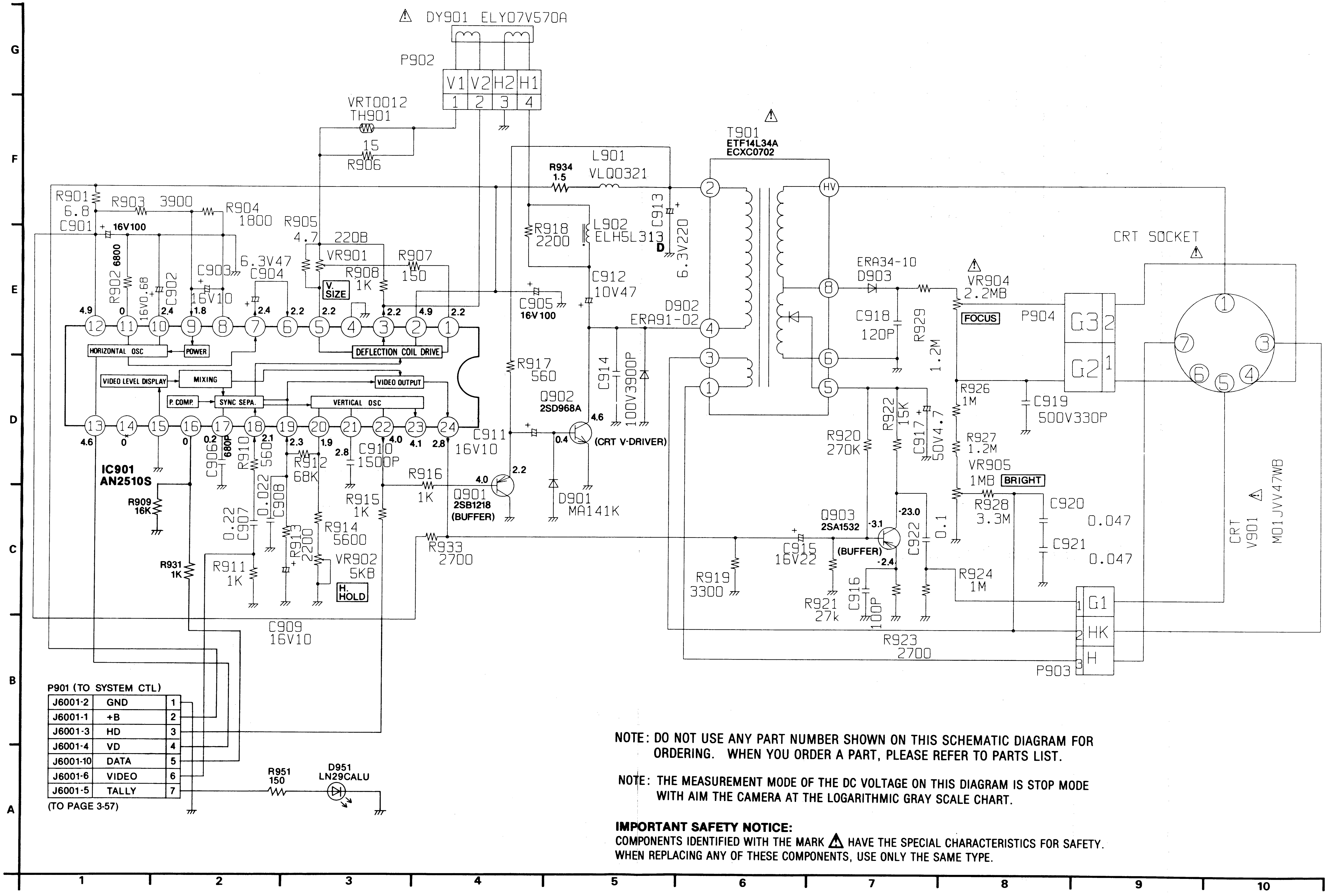
3-16. AWT (3) C.B.A. (VEP22083A)


IC 601
FP601
IC 602
C601
C602
C603
R601
R602
R603
R604
R605
R606
R607
R608
R609
R610
(COMPONENT SIDE)
(FOIL SIDE)
B
A
1
2
3
4

AWT (3) C.B.A.	
Integrated Circuit	
IC601 IC602	A-2 Ⓒ A-4 Ⓕ
Connector	
FP601 FP601	A-2 Ⓒ A-3 Ⓕ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

3-17. E.V.F. SCHEMATIC DIAGRAM


DY901 ELY07V570A
P902
V1 V2 H2 H1
1 2 3 4
VRT0012
TH901
15
R906
R901 6.8
R903 3900
R904 1800
C901 16V100
R905 4.7
220B
VR901
V. SIZE
R907 150
R908 1K
C903
6.3V47
C904
R902 6800
16V0.68
C902
16V10
HORIZONTAL OSC
POWER
DEFLECTION COIL DRIVE
VIDEO LEVEL DISPLAY
MIXING
VIDEO OUTPUT
P. COMP.
SYNC SEPA.
VERTICAL OSC
IC901
AN2510S
R909 16K
R931 1K
C906 680P
R910 560
R912 68K
C910 1500P
C907 0.22
C908 0.022
R913 2200
R911 1K
R914 5600
R915 1K
VR902 5KB
H. HOLD
C909 16V10
R916 1K
Q901 2SB1218 (BUFFER)
R933 2700
C911 16V10
R934 1.5
L901 VLQ0321
R918 2200
L902 ELH5L313
C913 6.3V220
D
C912 10V47
C905 16V100
D902 ERA91-02
R917 560
Q902 2SD968A
(CRT V-DRIVER)
C914 100V3900P
D901 MA141K
T901 ETF14L34A ECXC0702
HV
ERA34-10
D903
C918 120P
R929 1.2M
VR904 2.2MB
FOCUS
P904
G3 2
G2 1
CRT SOCKET
R926 1M
C919 500V330P
R927 1.2M
VR905 1MB
BRIGHT
R928 3.3M
C920 0.047
C921 0.047
R920 270K
R922 15K
C917 50V4.7
Q903 2SA1532 (BUFFER)
C922 0.1
R924 1M
C915 16V22
R919 3300
R921 27k
C916 100P
R923 2700
P903
G1
HK
H
CRT V901 M01JVV47WB
R951 150
D951 LN29CALU
4.9 0 2.4 1.8 2.4 2.2 2.2 2.2 4.9 2.2
4.6 0 0 0.2 2.1 2.3 1.9 2.8 4.0 4.1 2.8
4.0 2.2 4.6 0.4 -23.0 -3.1 -2.4
G F E D C B A
1 2 3 4 5 6 7 8 9 10

P901 (TO SYSTEM CTL)

J6001-2	GND	1
J6001-1	+B	2
J6001-3	HD	3
J6001-4	VD	4
J6001-10	DATA	5
J6001-6	VIDEO	6
J6001-5	TALLY	7

(TO PAGE 3-57)

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

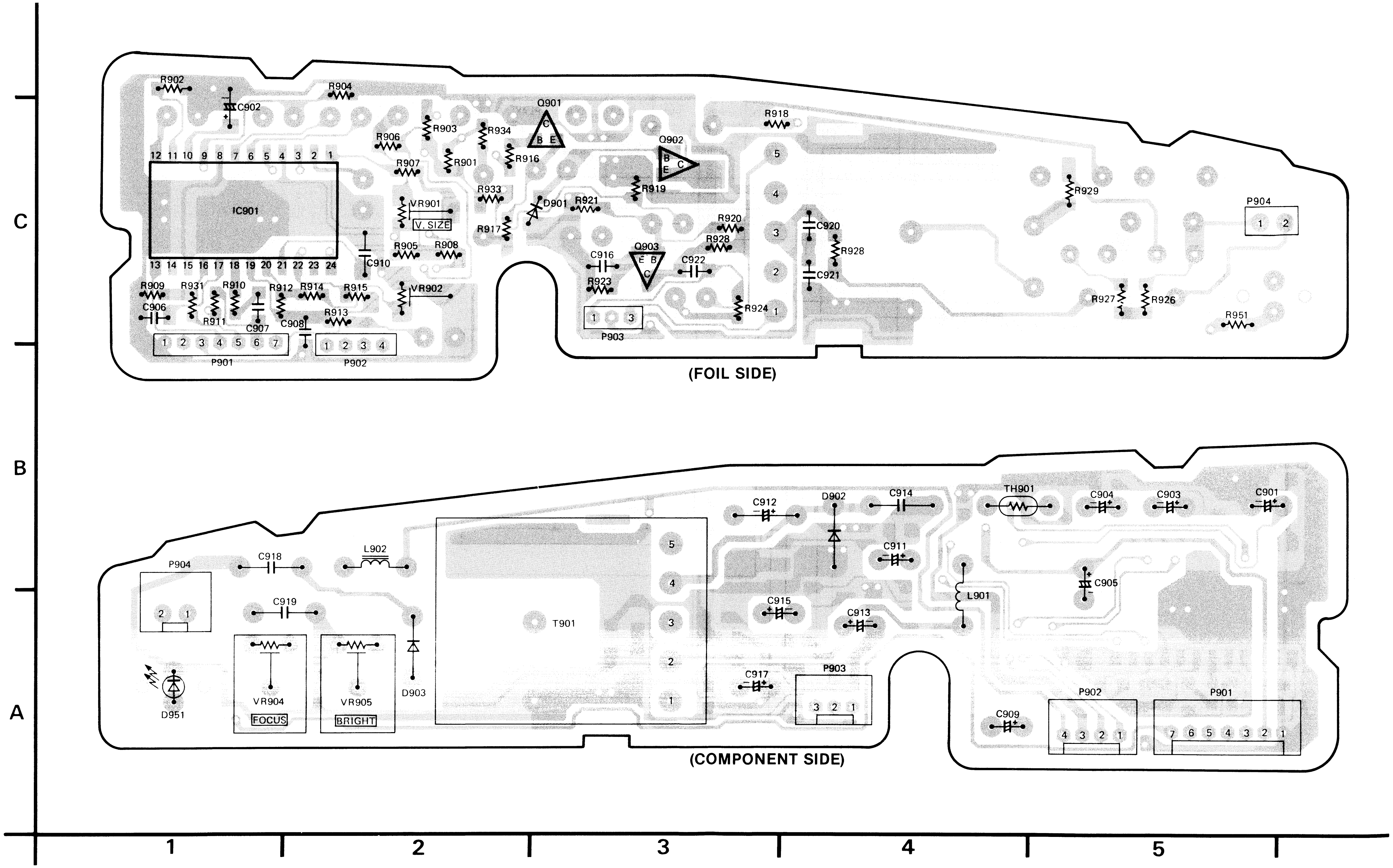
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

3-18. E.V.F. C.B.A. (VEP27038C)

E.V.F. C.B.A.					
Transistor		**Adjustment**		P901	B-1 Ⓕ
Q901	C-3 Ⓕ	VR901	C-2 Ⓕ	P902	A-5 Ⓒ
Q902	C-3 Ⓕ	VR902	C-2 Ⓕ	P902	B-2 Ⓕ
Q903	C-3 Ⓕ	VR904	A-1 Ⓒ	P903	A-4 Ⓒ
Integrated Circuit		VR905	A-2 Ⓒ	P903	C-3 Ⓕ
IC901	C-1 Ⓕ	**Connector**		P904	B-1 Ⓒ
		P901	A-5 Ⓒ	P904	C-5 Ⓕ

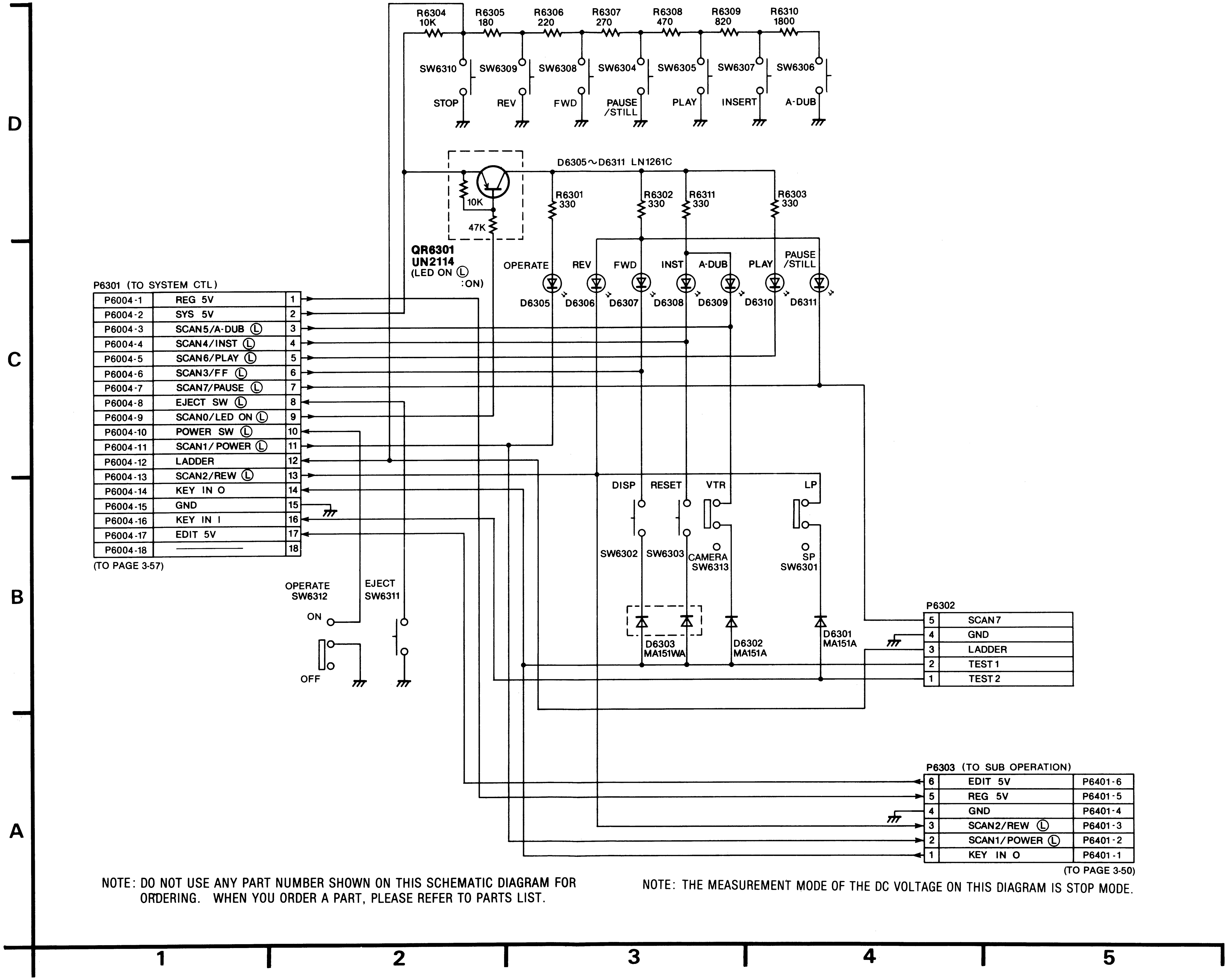
ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE


C
B
A
1
2
3
4
5
R902
C902
R904
R906
R903
R934
Q901
C
B E
Q902
B
E C
R916
R901
R907
R918
12 11 10 9 8 7 6 5 4 3 2 1
IC901
13 14 15 16 17 18 19 20 21 22 23 24
R933
VR901
V. SIZE
D901
R921
R919
R929
P904
1 2
R917
R920
R928
C920
R928
R905
R908
C910
C916
Q903
E B
C
C922
R923
C921
R909
R931
R910
R912
R914
R915
VR902
R927
R926
C906
R911
C907
C908
R913
R924
P903
1 3
R951
1 2 3 4 5 6 7
P901
1 2 3 4
P902
5
4
3
2
1
C912
D902
C914
TH901
C904
C903
C901
P904
C918
L902
C911
C905
L901
2 1
C919
T901
C915
C913
C917
P903
3 2 1
D951
VR904
FOCUS
VR905
BRIGHT
D903
C909
P902
4 3 2 1
P901
7 6 5 4 3 2 1

(FOIL SIDE)

(COMPONENT SIDE)

3-19. VTR OPERATION SCHEMATIC DIAGRAM

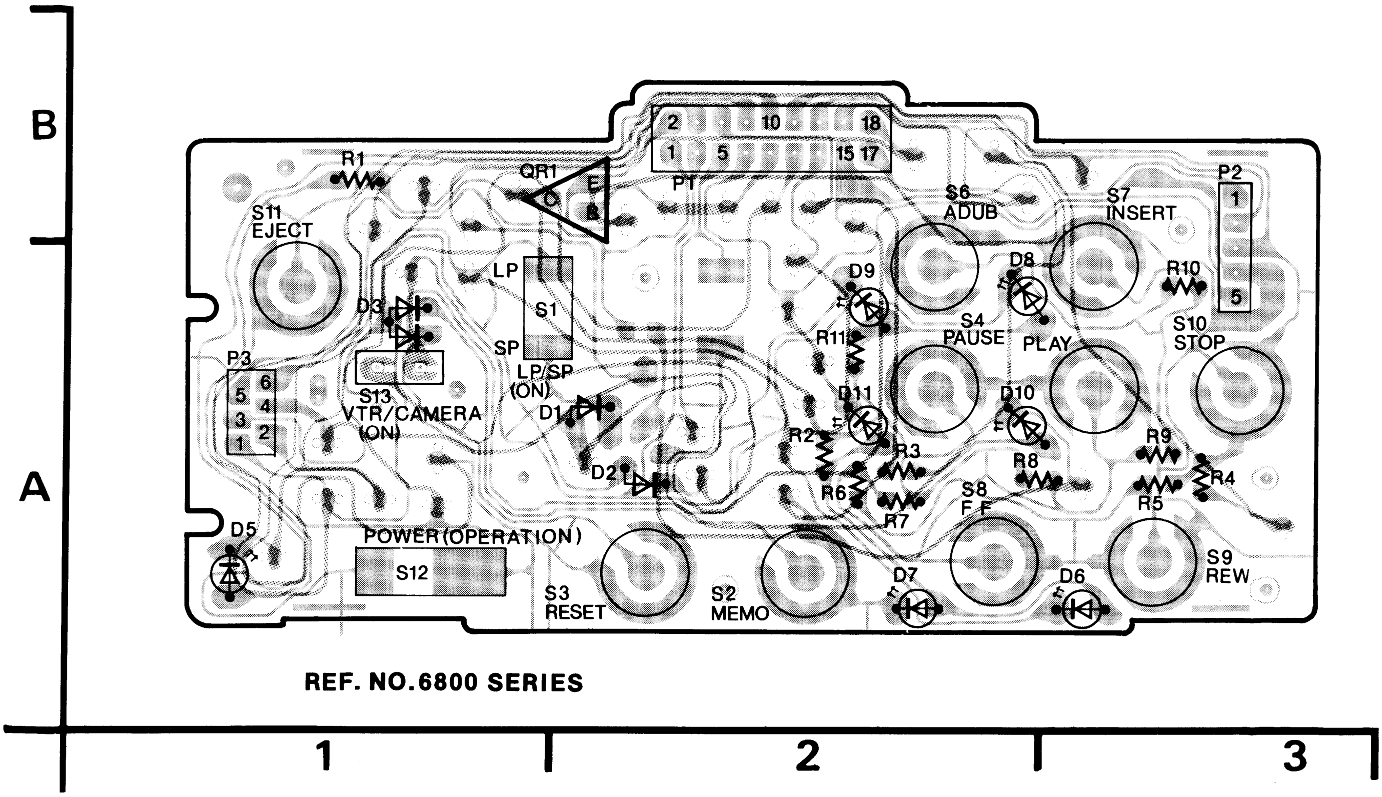

R6304 10K
R6305 180
R6306 220
R6307 270
R6308 470
R6309 820
R6310 1800
SW6310
SW6309
SW6308
SW6304
SW6305
SW6307
SW6306
STOP
REV
FWD
PAUSE /STILL
PLAY
INSERT
A-DUB
D6305~D6311 LN1261C
10K
47K
R6301 330
R6302 330
R6311 330
R6303 330
QR6301
UN2114
(LED ON Ⓛ :ON)
OPERATE
REV
FWD
INST
A-DUB
PLAY
PAUSE /STILL
D6305
D6306
D6307
D6308
D6309
D6310
D6311
P6301 (TO SYSTEM CTL)
P6004-1 REG 5V 1
P6004-2 SYS 5V 2
P6004-3 SCAN5/A-DUB Ⓛ 3
P6004-4 SCAN4/INST Ⓛ 4
P6004-5 SCAN6/PLAY Ⓛ 5
P6004-6 SCAN3/FF Ⓛ 6
P6004-7 SCAN7/PAUSE Ⓛ 7
P6004-8 EJECT SW Ⓛ 8
P6004-9 SCAN0/LED ON Ⓛ 9
P6004-10 POWER SW Ⓛ 10
P6004-11 SCAN1/POWER Ⓛ 11
P6004-12 LADDER 12
P6004-13 SCAN2/REW Ⓛ 13
P6004-14 KEY IN O 14
P6004-15 GND 15
P6004-16 KEY IN I 16
P6004-17 EDIT 5V 17
P6004-18 ——— 18
(TO PAGE 3-57)
DISP
RESET
VTR
LP
SW6302
SW6303
CAMERA SW6313
SP SW6301
OPERATE SW6312
ON
OFF
EJECT SW6311
D6303 MA151WA
D6302 MA151A
D6301 MA151A
P6302
5 SCAN7
4 GND
3 LADDER
2 TEST1
1 TEST2
P6303 (TO SUB OPERATION)
6 EDIT 5V P6401-6
5 REG 5V P6401-5
4 GND P6401-4
3 SCAN2/REW Ⓛ P6401-3
2 SCAN1/POWER Ⓛ P6401-2
1 KEY IN O P6401-1
(TO PAGE 3-50)
D
C
B
A
1
2
3
4
5

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

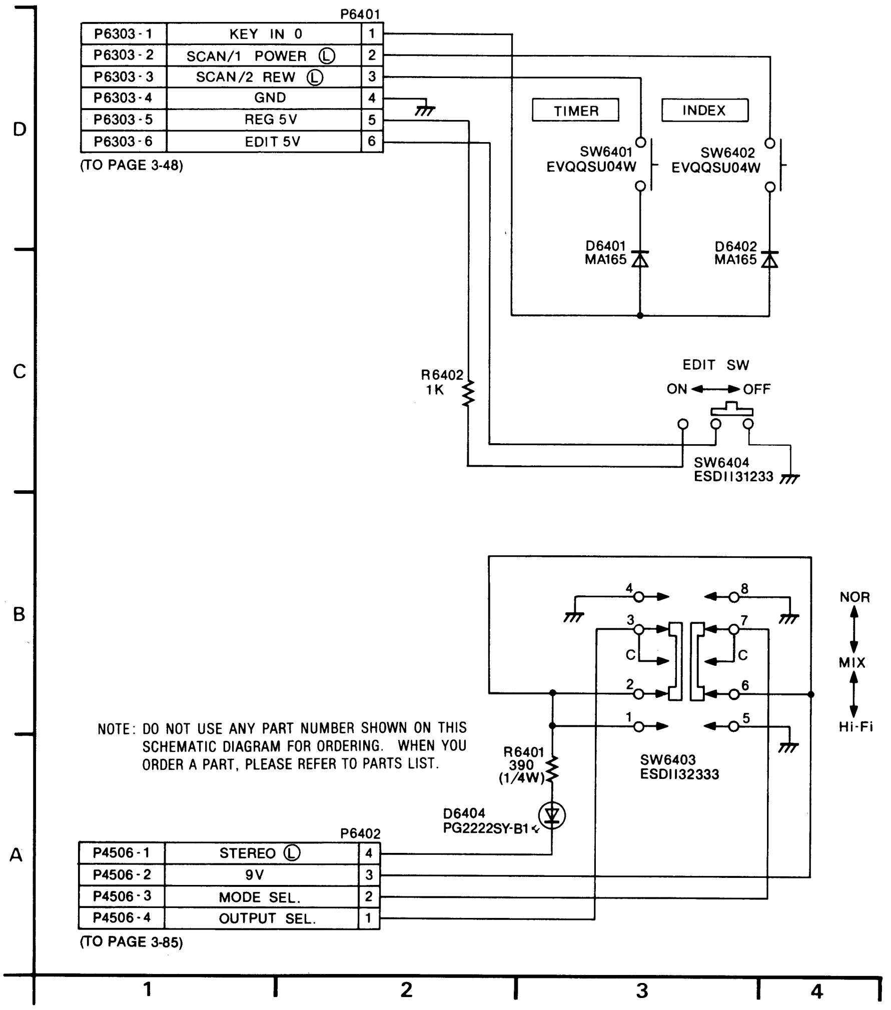
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

Back Page:
E.V.F. Section

3-20. VTR OPERATION C.B.A. (VEP06515D)

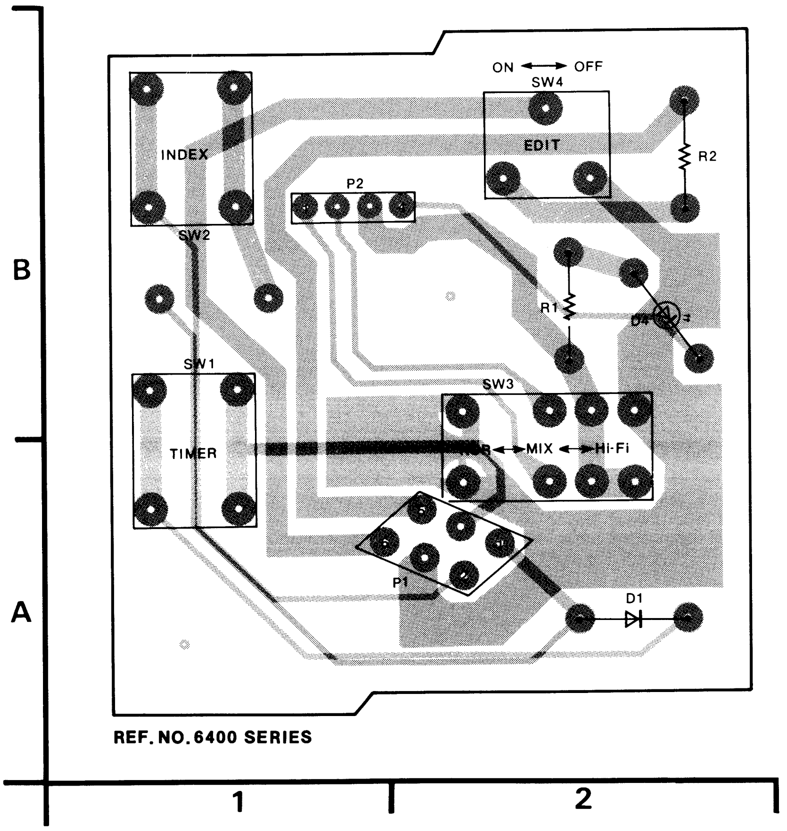

B
A
1
2
3
R1
QR1
E
C
B
P1
2
10
18
1
5
15
17
S11
EJECT
S6
ADUB
S7
INSERT
P2
1
5
LP
S1
SP
LP/SP
(ON)
D9
D8
R10
D3
S4
PAUSE
PLAY
S10
STOP
R11
P3
6
5
4
3
2
1
S13
VTR/CAMERA
(ON)
D1
D11
D10
R2
R3
R9
D2
R6
R8
R4
R5
R7
S8
F F
D5
POWER (OPERATION)
S12
S3
RESET
S2
MEMO
D7
D6
S9
REW
REF. NO.6800 SERIES

3-21. SUB OPERATION SCHEMATIC DIAGRAM

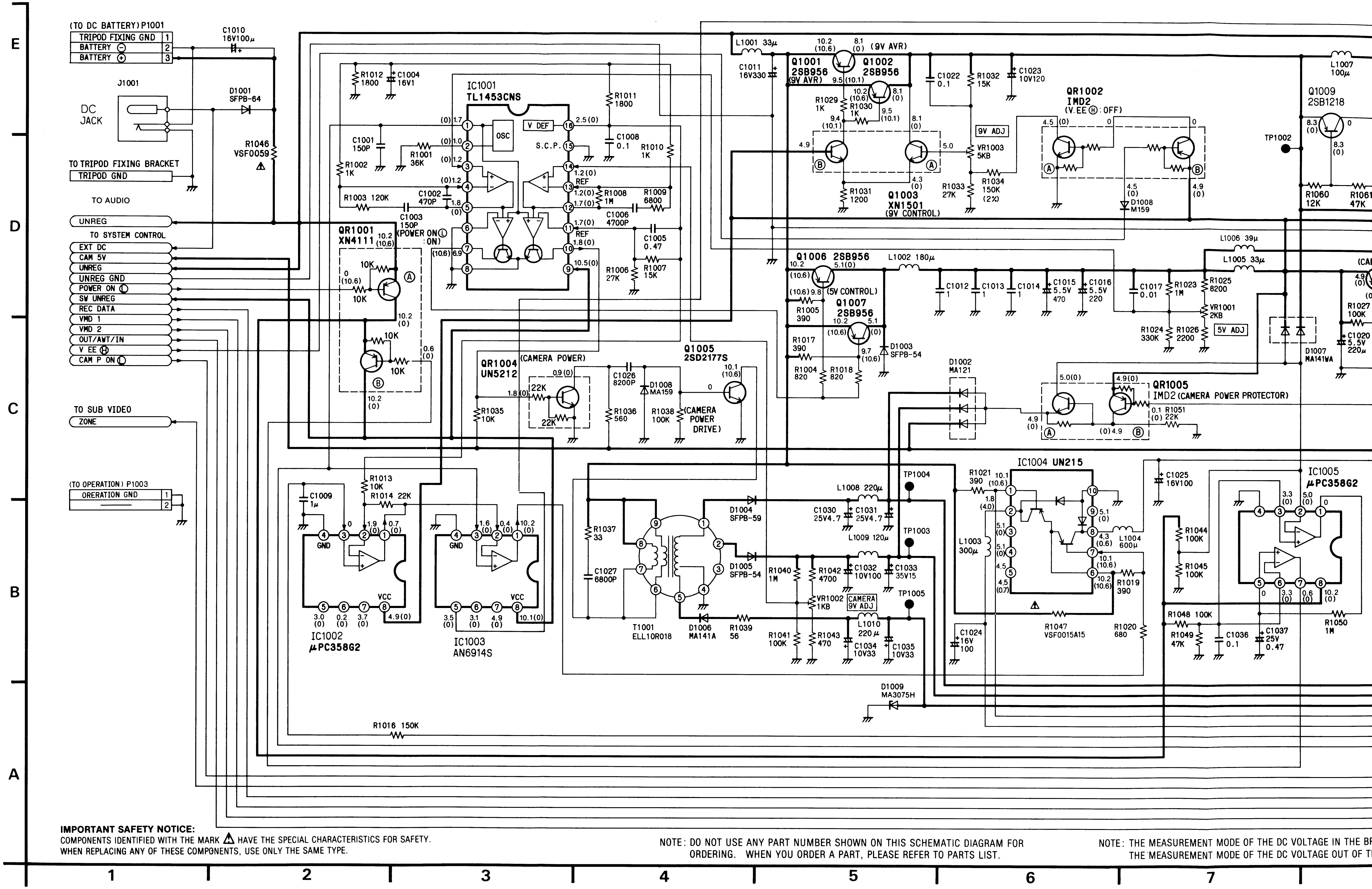

P6401
P6303-1 KEY IN 0 1
P6303-2 SCAN/1 POWER Ⓛ 2
P6303-3 SCAN/2 REW Ⓛ 3
P6303-4 GND 4
P6303-5 REG 5V 5
P6303-6 EDIT 5V 6
(TO PAGE 3-48)
TIMER
INDEX
SW6401 EVQQSU04W
SW6402 EVQQSU04W
D6401 MA165
D6402 MA165
R6402 1K
EDIT SW
ON ←→ OFF
SW6404 ESDI131233
NOR
MIX
Hi-Fi
C
C
SW6403 ESDI132333
R6401 390 (1/4W)
D6404 PG2222SY-B1
P6402
P4506-1 STEREO Ⓛ 4
P4506-2 9V 3
P4506-3 MODE SEL. 2
P4506-4 OUTPUT SEL. 1
(TO PAGE 3-85)
D
C
B
A
1
2
3
4

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-22. SUB OPERATION C.B.A. (VEK4033)


ON ←→ OFF
SW4
EDIT
R2
INDEX
P2
SW2
R1
D4
SW1
SW3
TIMER
NOR ←→ MIX ←→ Hi-Fi
P1
D1
REF. NO. 6400 SERIES
B
A
1
2

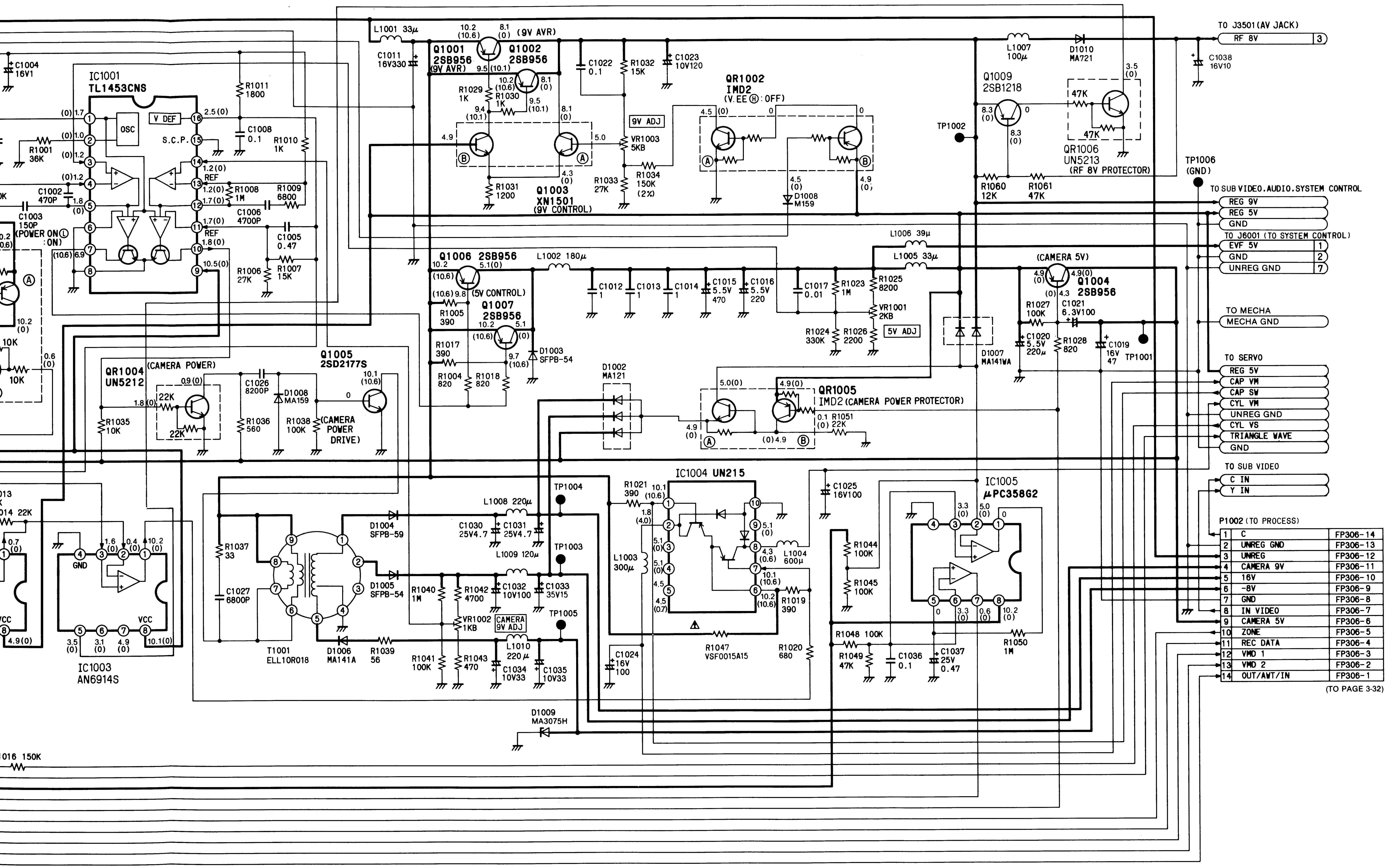
3-23. POWER SUPPLY SCHEMATIC DIAGRAM


E
D
C
B
A
1
2
3
4
5
6
7
(TO DC BATTERY) P1001
TRIPOD FIXING GND 1
BATTERY ⊖ 2
BATTERY ⊕ 3
J1001
DC JACK
TO TRIPOD FIXING BRACKET
TRIPOD GND
TO AUDIO
UNREG
TO SYSTEM CONTROL
EXT DC
CAM 5V
UNREG
UNREG GND
POWER ON Ⓛ
SW UNREG
REC DATA
VMD 1
VMD 2
OUT/AWT/IN
V EE Ⓗ
CAM P ON Ⓛ
TO SUB VIDEO
ZONE
(TO OPERATION) P1003
ORERATION GND 1
2
C1010 16V100μ
D1001 SFPB-64
R1046 VSF0059
R1012 1800
C1004 16V1
IC1001 TL1453CNS
OSC
V DEF
S.C.P.
REF
R1011 1800
C1008 0.1
R1010 1K
C1001 150P
R1001 36K
R1002 1K
R1003 120K
C1002 470P
R1008 1M
R1009 6800
C1006 4700P
C1005 0.47
R1006 27K
R1007 15K
QR1001 XN4111
C1003 150P
(POWER ONⓁ :ON)
10K
QR1004 UN5212
(CAMERA POWER)
22K
R1035 10K
C1026 8200P
D1008 MA159
R1036 560
R1038 100K
(CAMERA POWER DRIVE)
Q1005 2SD2177S
C1009 1μ
R1013 10K
R1014 22K
GND
VCC
IC1002 μPC358G2
IC1003 AN6914S
R1016 150K
L1001 33μ
C1011 16V330
Q1001 2SB956 (9V AVR)
Q1002 2SB956
(9V AVR)
R1029 1K
R1030 1K
C1022 0.1
R1032 15K
C1023 10V120
9V ADJ
VR1003 5KB
R1034 150K (2%)
R1033 27K
R1031 1200
Q1003 XN1501 (9V CONTROL)
QR1002 IMD2 (V.EE Ⓗ: OFF)
D1008 M159
Q1006 2SB956
(5V CONTROL)
Q1007 2SB956
L1002 180μ
R1005 390
R1017 390
R1004 820
R1018 820
D1003 SFPB-54
C1012 1
C1013 1
C1014 1
C1015 5.5V 470
C1016 5.5V 220
C1017 0.01
R1023 1M
R1025 8200
VR1001 2KB
5V ADJ
R1024 330K
R1026 2200
L1006 39μ
L1005 33μ
D1002 MA121
QR1005 IMD2 (CAMERA POWER PROTECTOR)
R1051 22K
L1007 100μ
Q1009 2SB1218
TP1002
R1060 12K
R1061 47K
D1007 MA141WA
R1027 100K
C1020 5.5V 220μ
R1037 33
C1027 6800P
T1001 ELL10R018
D1004 SFPB-59
D1005 SFPB-54
D1006 MA141A
R1039 56
L1008 220μ
C1030 25V4.7
C1031 25V4.7
L1009 120μ
TP1004
TP1003
TP1005
R1040 1M
R1042 4700
C1032 10V100
C1033 35V15
VR1002 1KB
CAMERA 9V ADJ
R1041 100K
R1043 470
L1010 220μ
C1034 10V33
C1035 10V33
D1009 MA3075H
IC1004 UN215
R1021 390
L1003 300μ
L1004 600μ
R1019 390
R1047 VSF0015A15
R1020 680
C1024 16V 100
C1025 16V100
IC1005 μPC358G2
R1044 100K
R1045 100K
R1048 100K
R1049 47K
C1036 0.1
C1037 25V 0.47
R1050 1M

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BR
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF T


IC1001
TL1453CNS
OSC
V DEF
S.C.P.
REF
R1011 1800
C1008 0.1
R1010 1K
R1001 36K
C1002 470P
C1003 150P
(POWER ON Ⓛ :ON)
R1008 1M
R1009 6800
C1006 4700P
C1005 0.47
R1006 27K
R1007 15K
C1004 16V1
L1001 33µ
C1011 16V330
Q1001 2SB956 (9V AVR)
Q1002 2SB956
(9V AVR)
R1029 1K
R1030 1K
R1031 1200
Q1003 XN1501 (9V CONTROL)
C1022 0.1
R1032 15K
C1023 10V120
9V ADJ
VR1003 5KB
R1033 27K
R1034 150K (2%)
QR1002 IMD2 (V.EE Ⓗ : OFF)
D1008 M159
L1007 100µ
D1010 MA721
Q1009 2SB1218
QR1006 UN5213 (RF 8V PROTECTOR)
R1060 12K
R1061 47K
TP1002
TP1006 (GND)
C1038 16V10
TO J3501 (AV JACK)
RF 8V
TO SUB VIDEO.AUDIO.SYSTEM CONTROL
REG 9V
REG 5V
GND
TO J6001 (TO SYSTEM CONTROL)
EVF 5V
GND
UNREG GND
Q1006 2SB956
L1002 180µ
(5V CONTROL)
Q1007 2SB956
R1005 390
R1017 390
R1004 820
R1018 820
D1003 SFPB-54
C1012 1
C1013 1
C1014 1
C1015 5.5V 470
C1016 5.5V 220
C1017 0.01
R1023 1M
R1025 8200
VR1001 2KB
R1024 330K
R1026 2200
5V ADJ
L1006 39µ
L1005 33µ
D1007 MA141WA
(CAMERA 5V)
Q1004 2SB956
R1027 100K
C1021 6.3V100
C1020 5.5V 220µ
R1028 820
C1019 16V 47
TP1001
TO MECHA
MECHA GND
TO SERVO
REG 5V
CAP VM
CAP SW
CYL VM
UNREG GND
CYL VS
TRIANGLE WAVE
GND
TO SUB VIDEO
C IN
Y IN
QR1004 UN5212 (CAMERA POWER)
R1035 10K
C1026 8200P
D1008 MA159
R1036 560
R1038 100K
Q1005 2SD2177S
(CAMERA POWER DRIVE)
D1002 MA121
QR1005 IMD2 (CAMERA POWER PROTECTOR)
R1051 22K
IC1003 AN6914S
GND
VCC
R1037 33
C1027 6800P
T1001 ELL10R018
D1004 SFPB-59
D1005 SFPB-54
D1006 MA141A
R1039 56
L1008 220µ
C1030 25V4.7
C1031 25V4.7
L1009 120µ
R1040 1M
R1042 4700
C1032 10V100
C1033 35V15
VR1002 1KB
CAMERA 9V ADJ
R1041 100K
R1043 470
L1010 220µ
C1034 10V33
C1035 10V33
TP1004
TP1003
TP1005
D1009 MA3075H
IC1004 UN215
R1021 390
L1003 300µ
L1004 600µ
R1019 390
R1047 VSF0015A15
R1020 680
C1024 16V 100
C1025 16V100
IC1005 µPC358G2
R1044 100K
R1045 100K
R1048 100K
R1049 47K
C1036 0.1
C1037 25V 0.47
R1050 1M
P1002 (TO PROCESS)
1 C FP306-14
2 UNREG GND FP306-13
3 UNREG FP306-12
4 CAMERA 9V FP306-11
5 16V FP306-10
6 -8V FP306-9
7 GND FP306-8
8 IN VIDEO FP306-7
9 CAMERA 5V FP306-6
10 ZONE FP306-5
11 REC DATA FP306-4
12 VMD 1 FP306-3
13 VMD 2 FP306-2
14 OUT/AWT/IN FP306-1
(TO PAGE 3-32)
R1016 150K

FOR SAFETY.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

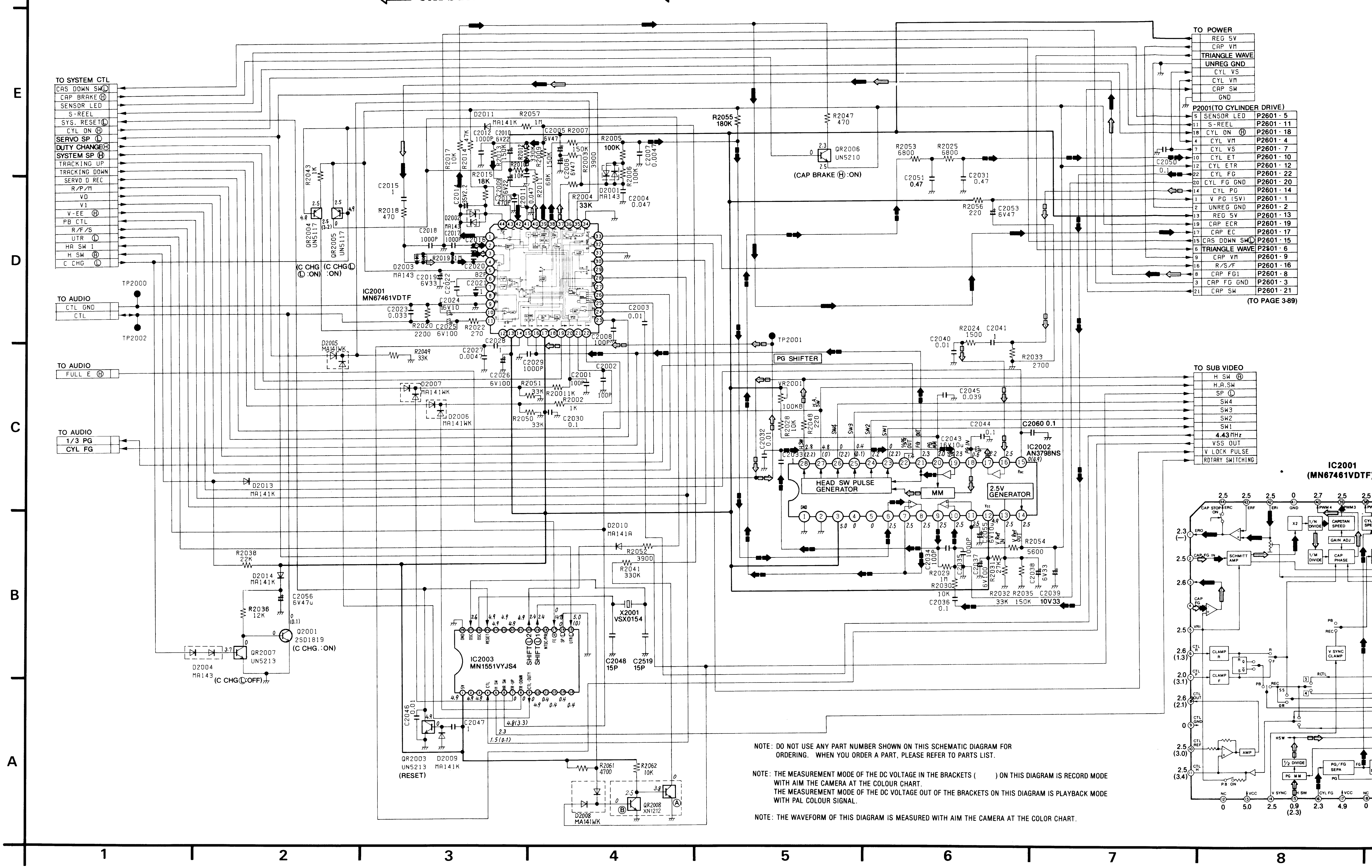
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS POWER OFF MODE.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS STOP MODE.

3 4 5 6 7 8 9

Next Page:
SERVO Section

3-24. SERVO SCHEMATIC DIAGRAM

CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP


TO SYSTEM CTL
CAS DOWN SW Ⓛ
CAP BRAKE Ⓗ
SENSOR LED
S-REEL
SYS. RESET Ⓛ
CYL ON Ⓗ
SERVO SP Ⓛ
DUTY CHANGE Ⓗ
SYSTEM SP Ⓗ
TRACKING UP
TRACKING DOWN
SERVO D REC
R/P/M
V0
V1
V-EE Ⓗ
PB CTL
R/F/S
UTR Ⓛ
HA SW 1
H SW Ⓐ
C CHG Ⓛ
TO AUDIO
CTL GND
CTL
TP2000
TP2002
TO AUDIO
FULL E Ⓗ
TO AUDIO
1/3 PG
CYL FG
QR2004 UN5117
QR2005 UN5117
(C CHG Ⓛ:ON)
(C CHG Ⓛ:ON)
IC2001 MN67461VDTF
D2005 MA141WK
D2007 MA141WK
D2006 MA141WK
D2013 MA141K
D2014 MA141K
D2004 MA143
QR2007 UN5213
Q2001 2SD1819
(C CHG.:ON)
(C CHG Ⓛ:OFF)
IC2003 MN1551VYJS4
SHIFT Ⓛ2
SHIFT Ⓛ1
X2001 VSX0154
C2048 15P
C2519 15P
QR2003 UN5213
(RESET)
D2009 MA141K
D2008 MA141WK
QR2008 XN1212
D2010 MA141A
R2055 180K
R2047 470
QR2006 UN5210
(CAP BRAKE Ⓗ:ON)
TP2001
PG SHIFTER
VR2001 100KB
IC2002 AN3798NS
HEAD SW PULSE GENERATOR
MM
2.5V GENERATOR
TO POWER
REG 5V
CAP VM
TRIANGLE WAVE
UNREG GND
CYL VS
CYL VM
CAP SW
GND
P2001(TO CYLINDER DRIVE)
5 SENSOR LED P2601 · 5
11 S-REEL P2601 · 11
18 CYL ON Ⓗ P2601 · 18
4 CYL VM P2601 · 4
7 CYL VS P2601 · 7
10 CYL ET P2601 · 10
12 CYL ETR P2601 · 12
22 CYL FG P2601 · 22
20 CYL FG GND P2601 · 20
14 CYL PG P2601 · 14
1 V PG (5V) P2601 · 1
2 UNREG GND P2601 · 2
13 REG 5V P2601 · 13
19 CAP ECR P2601 · 19
17 CAP EC P2601 · 17
15 CAS DOWN SW Ⓛ P2601 · 15
6 TRIANGLE WAVE P2601 · 6
9 CAP VM P2601 · 9
16 R/S/F P2601 · 16
8 CAP FG1 P2601 · 8
3 CAP FG GND P2601 · 3
21 CAP SW P2601 · 21
(TO PAGE 3-89)
TO SUB VIDEO
H SW Ⓐ
H.A.SW
SP Ⓛ
SW4
SW3
SW2
SW1
4.43MHz
VSS OUT
V LOCK PULSE
ROTARY SWITCHING
IC2001 (MN67461VDTF)
CAPSTAN SPEED
GAIN ADJ
CAP PHASE
SCHMITT AMP
CLAMP R
CLAMP F
V SYNC CLAMP
AMP
1/2 DIVIDE
PG MM
PG/FG SEPA
E
D
C
B
A
1
2
3
4
5
6
7
8

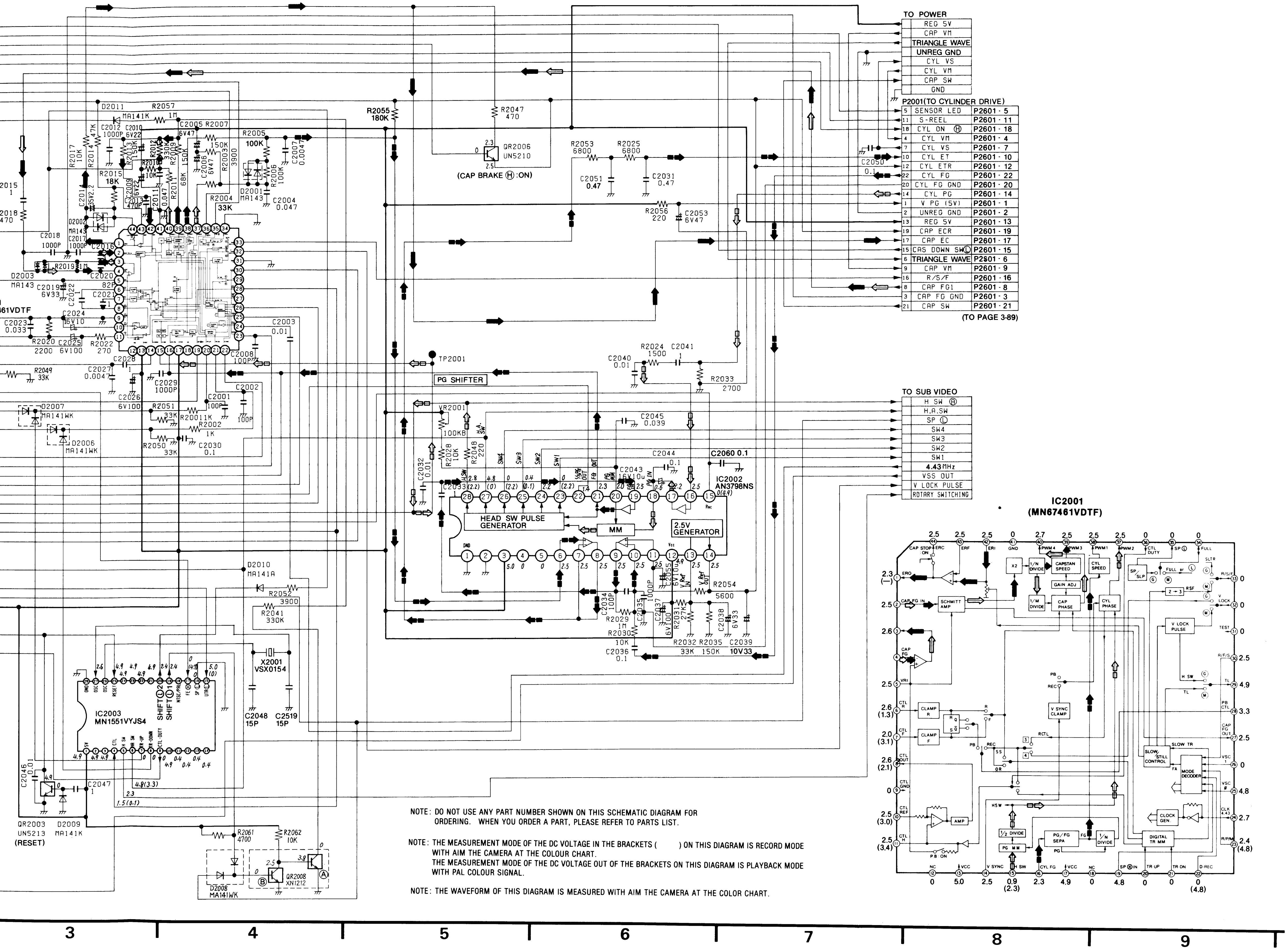
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOR CHART.

◀■ CAPSTAN SERVO SPEED LOOP ◀■ CYLINDER SERVO SPEED LOOP

◁□ CAPSTAN SERVO PHASE LOOP ◁□ CYLINDER SERVO PHASE LOOP

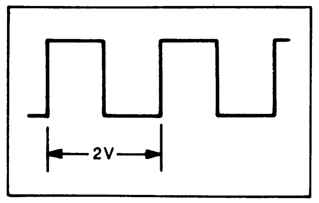

TO POWER
REG 5V
CAP VM
TRIANGLE WAVE
UNREG GND
CYL VS
CYL VM
CAP SW
GND
P2001(TO CYLINDER DRIVE)
SENSOR LED P2601 · 5
S-REEL P2601 · 11
CYL ON Ⓗ P2601 · 18
CYL VM P2601 · 4
CYL VS P2601 · 7
CYL ET P2601 · 10
CYL ETR P2601 · 12
CYL FG P2601 · 22
CYL FG GND P2601 · 20
CYL PG P2601 · 14
V PG (5V) P2601 · 1
UNREG GND P2601 · 2
REG 5V P2601 · 13
CAP ECR P2601 · 19
CAP EC P2601 · 17
CAS DOWN SW Ⓛ P2601 · 15
TRIANGLE WAVE P2601 · 6
CAP VM P2601 · 9
R/S/F P2601 · 16
CAP FG1 P2601 · 8
CAP FG GND P2601 · 3
CAP SW P2601 · 21
(TO PAGE 3-89)
TO SUB VIDEO
H SW Ⓡ
H.A.SW
SP Ⓛ
SW4
SW3
SW2
SW1
4.43MHz
VSS OUT
V LOCK PULSE
ROTARY SWITCHING
61VDTF
R2055 180K
R2047 470
QR2006 UN5210
(CAP BRAKE Ⓗ:ON)
R2053 6800
R2025 6800
C2051 0.47
C2031 0.47
R2056 220
C2053 6V47
TP2001
PG SHIFTER
R2024 1500
C2040 0.01
C2041 1
R2033 2700
VR2001 100KB
C2045 0.039
C2044
C2060 0.1
IC2002 AN3798NS
HEAD SW PULSE GENERATOR
MM
2.5V GENERATOR
R2054 5600
R2029 1M
R2030 10K
C2036 0.1
R2032 33K
R2035 150K
C2039 10V33
D2010 MA141A
R2052 3900
R2041 330K
X2001 VSX0154
C2048 15P
C2519 15P
IC2003 MN1551VYJS4
QR2003 UN5213
D2009 MA141K
(RESET)
R2061 4700
R2062 10K
D2008 MA141WK
QR2008 XN1212
IC2001 (MN67461VDTF)
SCHMITT AMP
CAPSTAN SPEED
CYL SPEED
GAIN ADJ
CAP PHASE
CYL PHASE
V LOCK PULSE
CLAMP R
CLAMP F
V SYNC CLAMP
SLOW, STILL CONTROL
MODE DECODER
CLOCK GEN
DIGITAL TR MM
PG/FG SEPA
1/2 DIVIDE
PG MM
1/N DIVIDE
1/M DIVIDE
AMP
3
4
5
6
7
8
9

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

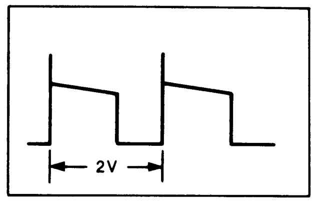
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOR CHART.

SERVO CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 2000 Series)

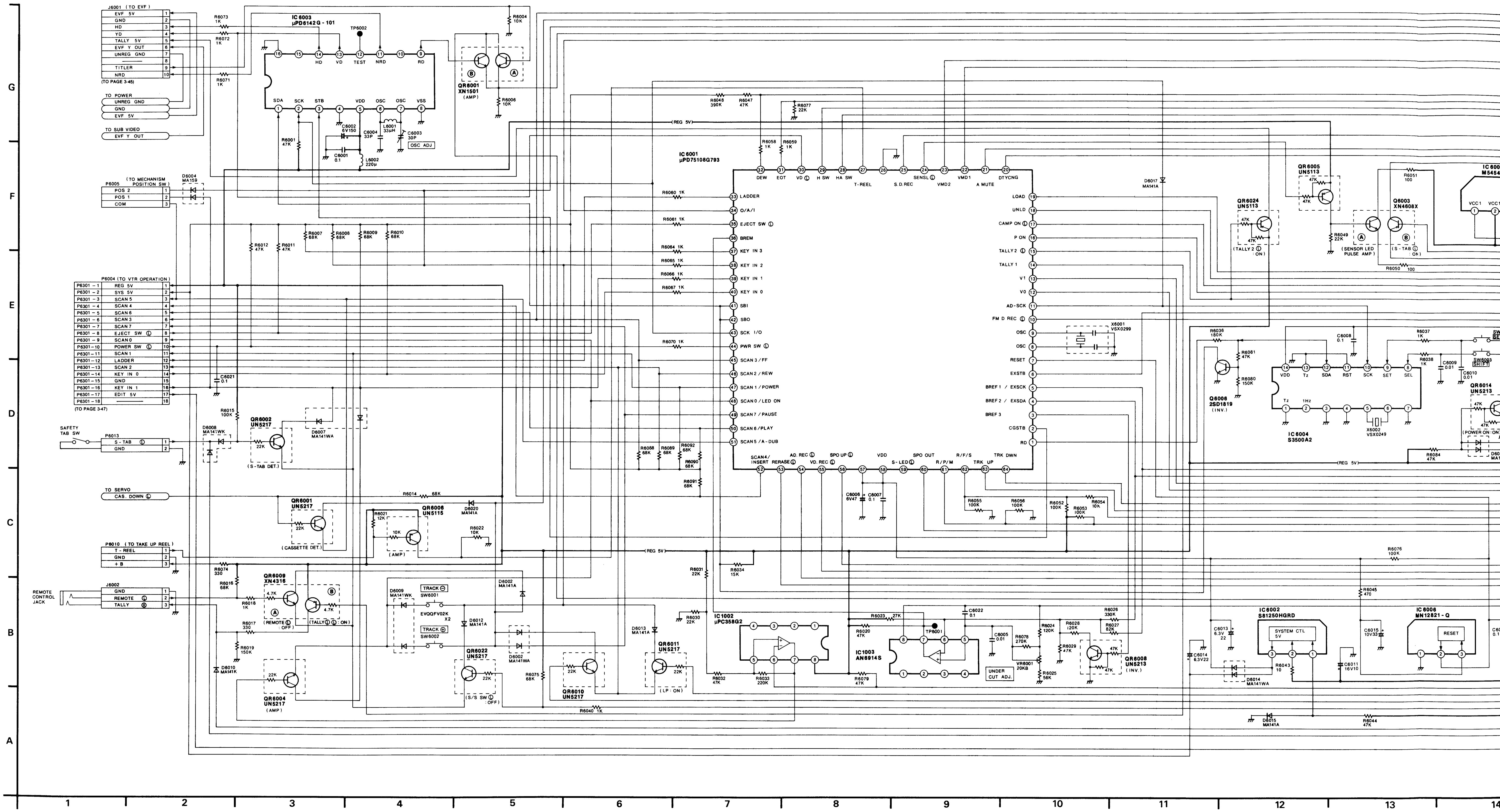


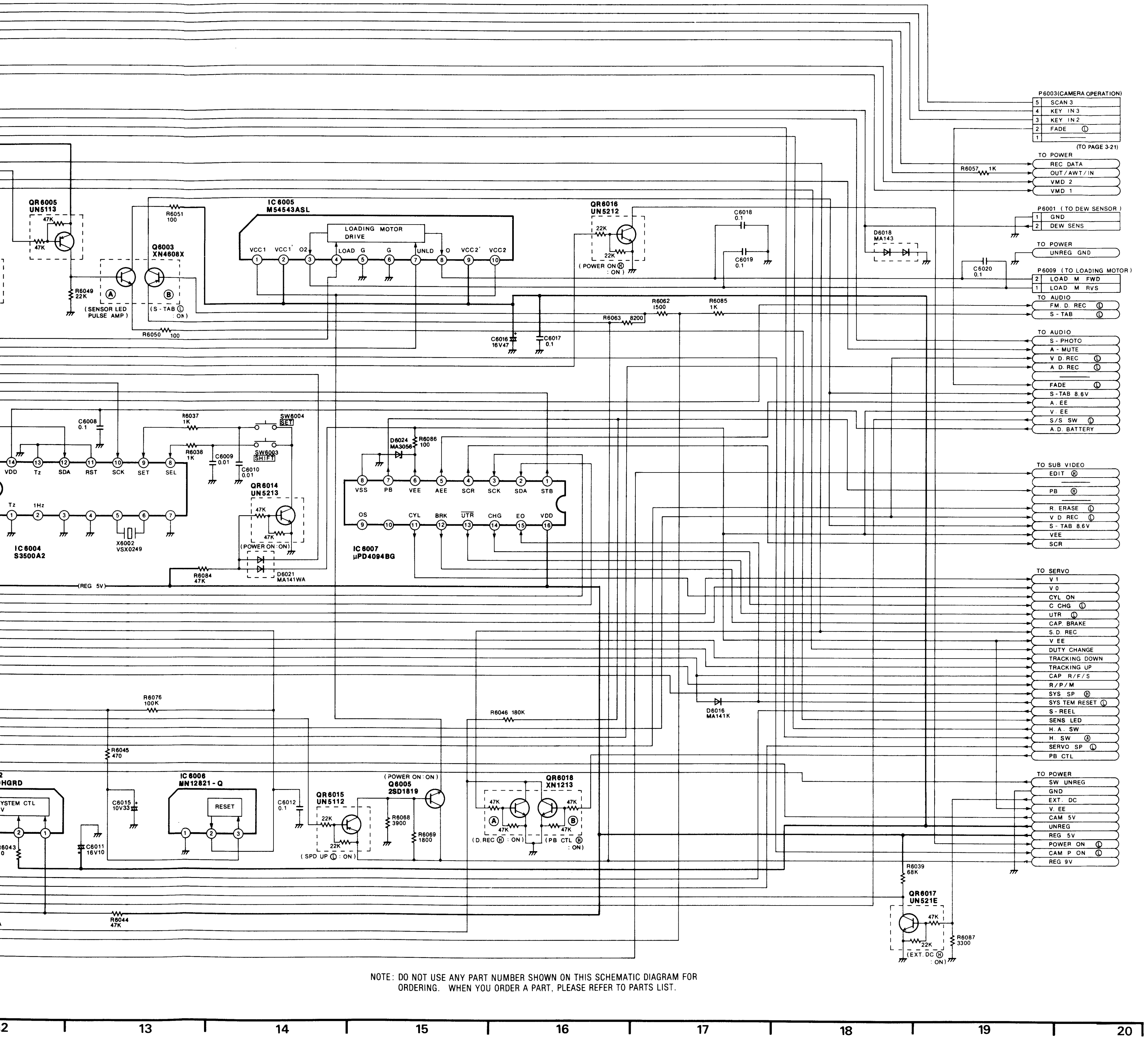
TP2001
2V/10msec. div. 4Vp-p



TP2002
2V/10msec. div. 3.2Vp-p

3-25. SYSTEM CONTROL SCHEMATIC DIAGRAM


J6001 (TO EVF)
EVF 5V
GND
HD
YD
TALLY 5V
EVF Y OUT
UNREG GND
TITLER
NRD
(TO PAGE 3-45)
TO POWER
UNREG GND
GND
EVF 5V
TO SUB VIDEO
EVF Y OUT
IC6003
μPD6142G-101
TP6002
SDA
SCK
STB
VDD
OSC
VSS
HD
VD
TEST
NRD
RD
QR6001
XN1501
(AMP)
OSC ADJ
IC6001
μPD75108G793
P6005 (TO MECHANISM POSITION SW)
POS 2
POS 1
COM
D6004
MA159
LADDER
O/A/I
EJECT SW Ⓛ
BREM
KEY IN 3
KEY IN 2
KEY IN 1
KEY IN 0
SBI
SBO
SCK I/O
PWR SW Ⓛ
SCAN 3/FF
SCAN 2/REW
SCAN 1/POWER
SCAN 0/LED ON
SCAN 7/PAUSE
SCAN 6/PLAY
SCAN 5/A-DUB
DEW
EOT
VD Ⓛ
H SW
HA SW
T-REEL
S.D.REC
SENSL Ⓛ
VMD2
VMD1
A MUTE
DTYCNG
LOAD
UNLD
CAMP ON Ⓛ
P ON
TALLY 2 Ⓛ
TALLY 1
V1
V0
AD-SCK
FM D REC Ⓛ
OSC
RESET
EXSTB
BREF 1 / EXSCK
BREF 2 / EXSDA
BREF 3
CGSTB
RD
SCAN4/INSERT
AD. REC Ⓛ
ERASE Ⓛ
VD. REC Ⓛ
SPO UP Ⓛ
VDD
S-LED Ⓛ
SPO OUT
R/P/M
R/F/S
TRK UP
TRK DWN
X6001
VSX0299
P6004 (TO VTR OPERATION)
P6301-1 REG 5V
P6301-2 SYS 5V
P6301-3 SCAN 5
P6301-4 SCAN 4
P6301-5 SCAN 6
P6301-6 SCAN 3
P6301-7 SCAN 7
P6301-8 EJECT SW Ⓛ
P6301-9 SCAN 0
P6301-10 POWER SW Ⓛ
P6301-11 SCAN 1
P6301-12 LADDER
P6301-13 SCAN 2
P6301-14 KEY IN 0
P6301-15 GND
P6301-16 KEY IN 1
P6301-17 EDIT 5V
P6301-18
(TO PAGE 3-47)
SAFETY TAB SW
P6013
S-TAB Ⓛ
GND
QR6002
UN5217
(S-TAB DET.)
D6007
MA141WA
D6008
MA141WK
TO SERVO
CAS. DOWN Ⓛ
QR6001
UN5217
(CASSETTE DET.)
QR6006
UN5115
(AMP)
D6020
MA141A
P6010 (TO TAKE UP REEL)
T-REEL
GND
+B
(REG 5V)
REMOTE CONTROL JACK
J6002
GND
REMOTE Ⓛ
TALLY Ⓗ
QR6009
XN4316
(REMOTE Ⓛ OFF)
(TALLY Ⓛ Ⓛ ON)
QR6004
UN5217
(AMP)
D6010
MA141K
D6009
MA141WK
TRACK ⊖
SW6001
EVQQFV02K X2
TRACK ⊕
SW6002
D6012
MA141A
QR6022
UN5217
(S/S SW Ⓛ OFF)
D6002
MA141A
D6002
MA141WA
QR6010
UN5217
D6013
MA141A
QR6011
UN5217
(LP ON)
IC1002
μPC358G2
IC1003
AN6914S
TP6001
UNDER CUT ADJ.
VR6001
20KB
QR6008
UN5213
(INV.)
D6017
MA141A
QR6024
UN5113
(TALLY 2 Ⓛ ON)
QR6005
UN5113
Q6003
XN4608X
(SENSOR LED PULSE AMP)
(S-TAB Ⓛ ON)
IC600
M5454
VCC1
Q6006
2SD1819
(INV.)
IC6004
S3500A2
VDD
Tz
SDA
RST
SCK
SET
SEL
1Hz
X6002
VSX0249
SW6003
SHIFT
QR6014
UN5213
(POWER ON)
IC6002
S81250HGRD
SYSTEM CTL 5V
IC6006
MN12821-Q
RESET
D6014
MA141WA
D6015
MA141A
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
14


P6003(CAMERA OPERATION)
5 SCAN 3
4 KEY IN 3
3 KEY IN 2
2 FADE Ⓛ
1
(TO PAGE 3-21)
TO POWER
REC DATA
OUT/AWT/IN
VMD 2
VMD 1
R6057 1K
P6001 (TO DEW SENSOR)
1 GND
2 DEW SENS
TO POWER
UNREG GND
C6020 0.1
P6009 (TO LOADING MOTOR)
2 LOAD M FWD
1 LOAD M RVS
TO AUDIO
FM. D. REC Ⓛ
S - TAB Ⓛ
TO AUDIO
S - PHOTO
A - MUTE
V D. REC Ⓛ
A D. REC Ⓛ
FADE Ⓛ
S - TAB 8.6V
A . EE
V . EE
S/S SW Ⓛ
A.D. BATTERY
TO SUB VIDEO
EDIT Ⓗ
PB Ⓗ
R. ERASE Ⓛ
V D REC Ⓛ
S - TAB 8.6V
VEE
SCR
TO SERVO
V 1
V 0
CYL ON
C CHG Ⓛ
UTR Ⓛ
CAP. BRAKE
S. D. REC
V EE
DUTY CHANGE
TRACKING DOWN
TRACKING UP
CAP R/F/S
R/P/M
SYS SP Ⓗ
SYS TEM RESET Ⓛ
S - REEL
SENS LED
H. A. SW
H. SW Ⓐ
SERVO SP Ⓛ
PB CTL
TO POWER
SW UNREG
GND
EXT. DC
V. EE
CAM 5V
UNREG
REG 5V
POWER ON Ⓛ
CAM P ON Ⓛ
REG 9V
QR6005 UN5113
47K
R6049 22K
(SENSOR LED PULSE AMP)
Q6003 XN4608X
(S-TAB Ⓛ : ON)
R6051 100
R6050 100
IC6005 M54543ASL
LOADING MOTOR DRIVE
VCC1 VCC1' O2 LOAD G G UNLD O VCC2' VCC2
QR6016 UN5212
22K
(POWER ON Ⓗ : ON)
C6018 0.1
C6019 0.1
D6018 MA143
R6062 1500
R6085 1K
R6063 8200
C6016 16V47
C6017 0.1
C6008 0.1
R6037 1K
SW6004 SET
R6038 1K
SW6003 SHIFT
C6009 0.01
C6010 0.01
VDD Tz SDA RST SCK SET SEL
QR6014 UN5213
(POWER ON : ON)
D6021 MA141WA
R6084 47K
(REG 5V)
IC6004 S3500A2
X6002 VSX0249
Tz 1Hz
D6024 MA3056
R6086 100
VSS PB VEE AEE SCR SCK SDA STB
OS CYL BRK UTR CHG EO VDD
IC6007 μPD4094BG
R6076 100K
R6046 180K
D6016 MA141K
R6045 470
IC6006 MN12821-Q
RESET
C6015 10V33
C6011 16V10
C6012 0.1
QR6015 UN5112
(SPD UP Ⓛ : ON)
(POWER ON : ON) Q6005 2SD1819
R6068 3900
R6069 1800
QR6018 XN1213
(D.REC Ⓗ : ON)
(PB CTL Ⓗ : ON)
R6039 68K
QR6017 UN521E
R6087 3300
(EXT. DC Ⓗ : ON)
R6044 47K
YSTEM CTL
HGRD
R6043
12 13 14 15 16 17 18 19 20

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

SYSTEM CONTROL Section ICs VOLTAGE CHART (SP MODE)

REF. NO.	IC1002										IC1003									
MODE	1	2	3	4	5	6	7	8			1	2	3	4	5	6	7	8		
STOP	0.4	1.8	0	0	1.9	4.1	0	4.9			10.2	0.4	1.6	0	3.5	3.1	4.9	10.1		
PLAY	1.5	2.1	2.1	0	—	4.5	—	4.9			7.2	1.5	1.6	0	3.5	3.1	4.9	10.1		
F.F	0.4	1.8	0	0	—	—	—	4.9			10.1	0.4	1.6	0	3.5	3.1	4.9	10.1		

REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	4.8	0.1	0.1	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0
PLAY	—	0	0	0	0	0	4.8	0	0	4.8	0	0	0	0	4.9	0	0	0	0	0
F.F	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	4.9	0.1	0.1	0.1	0.1	0.1	0

REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	4.9	0	0	4.9	0	0	4.9	0	4.2	0.1	0	0	4.8	2.0	4.8	4.9	0.8	0.8	0	4.8
PLAY	0	0	0	4.9	0	0	—	—	—	0	0	0	4.8	0	4.8	4.9	0.8	0.8	0.8	0.8
F.F	4.9	0	0	4.9	0	0	—	4.8	4.3	0.1	0	0	4.8	2.0	4.7	4.8	0.8	0.7	—	4.7

REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	—	—	4.8	4.8	4.8	4.8	0.2	0.2	3.5	4.8	—	4.6	0.1	0	0	0	0	0	0	0
PLAY	—	—	4.8	4.8	4.7	—	0	0.3	3.5	—	3.6	3.5	0.1	0.1	0.1	0.1	0.1	0.1	0	0
F.F	—	—	4.8	4.8	—	—	0.4	0.3	1.5	4.8	—	4.7	0	0	0	0	0	0	0	0

REF. NO.	IC6001																			
MODE	61	62	63	64																
STOP	0	0	0	0																
PLAY	0	0	0	0																
F.F	0	0	0	0																

REF. NO.	IC6002																			
MODE	1	2	3																	
STOP	0	10.1	5.5																	
PLAY	0.4	10.0	5.5																	
F.F	0.4	10.0	5.5																	

REF. NO.	IC6003																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	—	4.8	0	0	4.8	2.3	2.3	0	0	0	0	0	0	0	0	0				
PLAY	—	4.7	0.1	0	4.6	2.6	2.6	0	0	0	0	0	0	0	0	0				
F.F	—	4.8	0.1	0	4.6	2.6	2.6	0	0	0	0	0	0	0	0	0				

REF. NO.	IC6004																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	0	0	0	0	0	0	0	0	4.8	0	0.7	0	0						
PLAY	0	0	0	0	0	0	0	0	0	4.8	0	—	0	0						
F.F	0	0	0	0	0	0	0	0	0	4.9	0	—	0	0						

REF. NO.	IC6005																			
MODE	1	2	3	4	5	6	7	8	9	10										
STOP	4.8	10.2	—	0	0	0	0	0.5	10.2	4.8										
PLAY	5.0	10.2	0	0	0	0	0	0	10.2	5.1										
F.F	5.1	10.2	0	0	0	0	0	0	10.2	5.1										

REF. NO.	IC6006																			
MODE	1	2	3																	
STOP	0	4.8	4.9																	
PLAY	0	4.8	4.9																	
F.F	0	4.8	4.9																	

REF. NO.	IC6007																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	0	4.9	4.8	0	4.8	4.6	0	0	0	4.5	0	0	4.9	0	4.8	4.9				
PLAY	0	4.8	4.8	0	0	0	4.8	0	—	4.8	4.9	0	4.9	4.9	4.8	4.9				
F.F	0	4.8	4.8	0	0	0	4.8	0	0	—	0	0	4.9	4.9	4.8	4.9				

SYSTEM CONTROL TRANSISTORs VOLTAGE CHART

REF. NO.	Q6003 Ⓐ			Q6003 Ⓑ			Q6005			Q6006								
MODE	E	C	B	E	C	B	E	C	B	E	C	B						
STOP	0	10.2	0	8.1	0.3	8.2	4.8	8.1	5.5	0	2.2	0.2						
PLAY	0	10.2	0	8.5	8.5	7.8	5.1	8.5	5.7	0	—	0.2						
F.F	0	10.2	0	9.0	9.4	8.6	4.8	8.1	5.5	0	—	0.2						

REF. NO.	QR6001			QR6002			QR6004			QR6005			QR6006			QR6008		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	3.7	3.6	4.3	0.5	—	1.6	0.2	0.1	3.7	4.9	0	4.9	4.9	0	4.9	0	0	4.8
PLAY	3.6	—	0	—	—	0.4	—	—	3.7	4.9	0	4.9	4.9	4.9	—	0	0	4.9
F.F	4.5	—	0	—	—	0.3	0.3	—	—	4.9	0	4.9	4.9	—	—	0	0	4.9

REF. NO.	QR6009 Ⓐ			QR6009 Ⓑ			QR6010			QR6011			QR6014			QR6015		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	—	0	1.2	4.9	0	4.9	4.8	—	04.8	—	0	0	0	2.6	8.1	5.5	8.1	
PLAY	—	—	—	4.9	—	4.9	4.8	—	0	4.8	—	0	−0.3	0	0.4	8.5	5.7	8.5
F.F	0.4	—	—	4.9	0	4.9	4.8	—	0	4.8	4.1	4.4	0	0	2.6	8.1	5.5	8.1

REF. NO.	QR6016			QR6017			QR6018 Ⓐ			QR6018 Ⓑ			QR6022			QR6024		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	4.8	0	0	10.6	0	0	0	0	0	0	—	—	1.6	4.9	0	4.9
PLAY	0	0	4.9	0	0	10.6	0	—	0	0	—	—	—	—	1.7	4.9	0	4.9
F.F	0	0	4.9	0	0	10.6	0	0	0	0	0	0	—	—	—	4.9	0	4.9

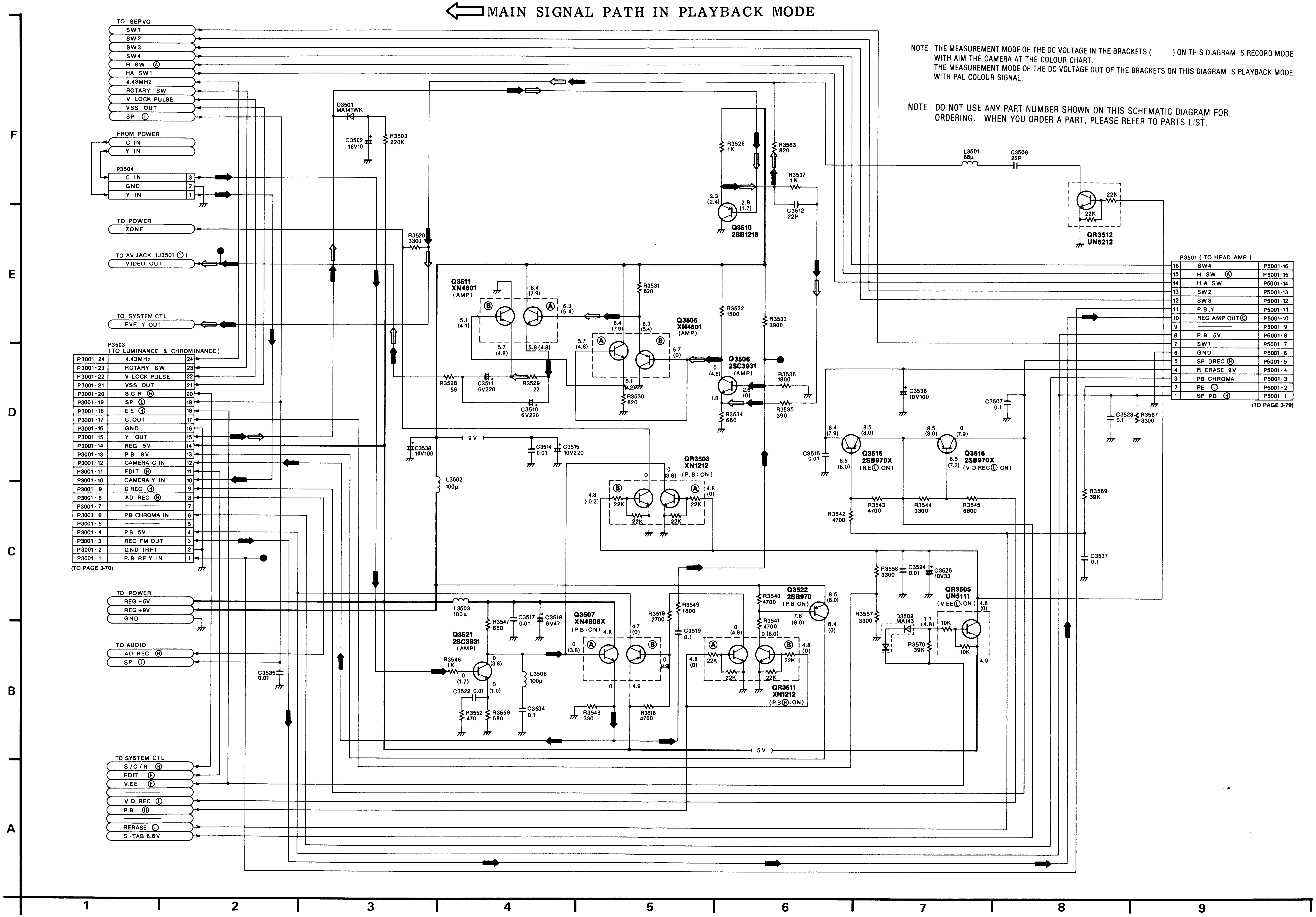
3-26. SUB VIDEO SCHEMATIC DIAGRAM

⬅ MAIN SIGNAL PATH IN REC MODE

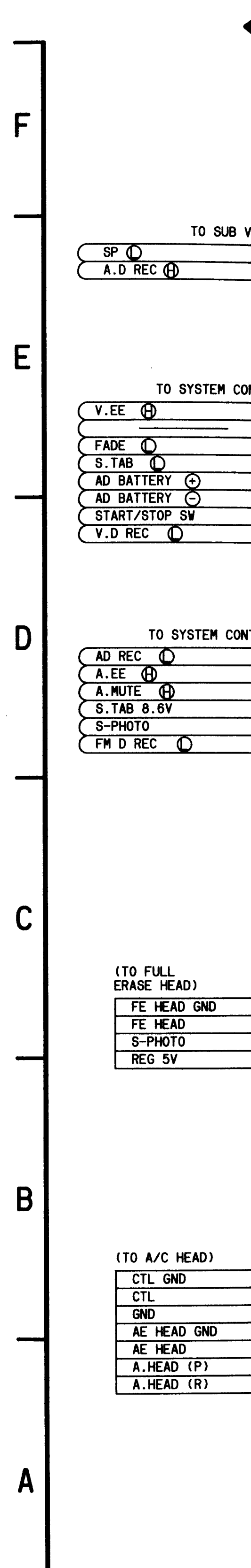
⇦ MAIN SIGNAL PATH IN PLAYBACK MODE

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.


F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
TO SERVO
SW1
SW2
SW3
SW4
H SW Ⓐ
HA SW1
4.43MHz
ROTARY SW
V LOCK PULSE
VSS OUT
SP Ⓛ
FROM POWER
C IN
Y IN
P3504
C IN
GND
Y IN
TO POWER
ZONE
TO AV JACK (J3501-①)
VIDEO OUT
TO SYSTEM CTL
EVF Y OUT
P3503 (TO LUMINANCE & CHROMINANCE)
P3001-24 4.43MHz 24
P3001-23 ROTARY SW 23
P3001-22 V LOCK PULSE 22
P3001-21 VSS OUT 21
P3001-20 S.C.R Ⓗ 20
P3001-19 SP Ⓛ 19
P3001-18 E E Ⓗ 18
P3001-17 C.OUT 17
P3001-16 GND 16
P3001-15 Y OUT 15
P3001-14 REG 5V 14
P3001-13 P.B 9V 13
P3001-12 CAMERA C IN 12
P3001-11 EDIT Ⓗ 11
P3001-10 CAMERA Y IN 10
P3001-9 D REC Ⓗ 9
P3001-8 AD REC Ⓗ 8
P3001-7 7
P3001-6 PB CHROMA IN 6
P3001-5 5
P3001-4 P.B 5V 4
P3001-3 REC FM OUT 3
P3001-2 GND (RF) 2
P3001-1 P.B RF Y IN 1
(TO PAGE 3-70)
TO POWER
REG +5V
REG +9V
GND
TO AUDIO
AD REC Ⓗ
SP Ⓛ
TO SYSTEM CTL
S/C/R Ⓗ
EDIT Ⓗ
V.EE Ⓗ
V D REC Ⓛ
P.B Ⓗ
RERASE Ⓛ
S-TAB 8.6V
D3501 MA141WK
C3502 16V10
R3503 220K
C3535 0.01
R3520 3300
Q3511 XN4601 (AMP)
Q3505 XN4601 (AMP)
Q3506 2SC3931 (AMP)
Q3510 2SB1218
R3526 1K
R3563 820
R3537 1K
C3512 22P
R3531 820
R3532 1500
R3533 3900
R3528 56
C3511 6V220
R3529 22
C3510 6V220
R3530 820
R3536 1800
R3534 680
R3535 390
C3538 10V100
9V
C3514 0.01
C3515 10V220
L3502 100µ
QR3503 XN1212 (P.B:ON)
L3501 68µ
C3506 22P
QR3512 UN5212
22K
C3536 10V100
C3507 0.1
C3516 0.01
Q3515 2SB970X (RE Ⓛ:ON)
Q3516 2SB970X (V.D REC Ⓛ:ON)
R3542 4700
R3543 4700
R3544 3300
R3545 6800
C3528 0.1
R3567 3300
R3569 39K
C3537 0.1
P3501 (TO HEAD AMP)
16 SW4 P5001-16
15 H SW Ⓐ P5001-15
14 H.A SW P5001-14
13 SW2 P5001-13
12 SW3 P5001-12
11 P.B.Y P5001-11
10 REC AMP OUT Ⓒ P5001-10
9 P5001-9
8 P.B 5V P5001-8
7 SW1 P5001-7
6 GND P5001-6
5 SP DREC Ⓗ P5001-5
4 R ERASE 9V P5001-4
3 PB CHROMA P5001-3
2 RE Ⓛ P5001-2
1 SP PB Ⓗ P5001-1
(TO PAGE 3-79)
L3503 100µ
R3547 680
C3517 0.01
C3518 6V47
Q3521 2SC3931 (AMP)
R3546 1K
C3522 0.01
R3552 470
R3559 680
L3506 100µ
C3534 0.1
Q3507 XN4608X (P.B:ON)
R3548 330
R3518 4700
R3519 2700
R3549 1800
C3519 0.1
R3540 4700
R3541 4700
Q3522 2SB970 (P.B:ON)
QR3511 XN1212 (P.B Ⓗ:ON)
R3558 3300
C3524 0.01
C3525 10V33
QR3505 UN5111 (V.EE Ⓛ:ON)
R3557 3300
D3502 MA143
R3570 39K
10K
5V

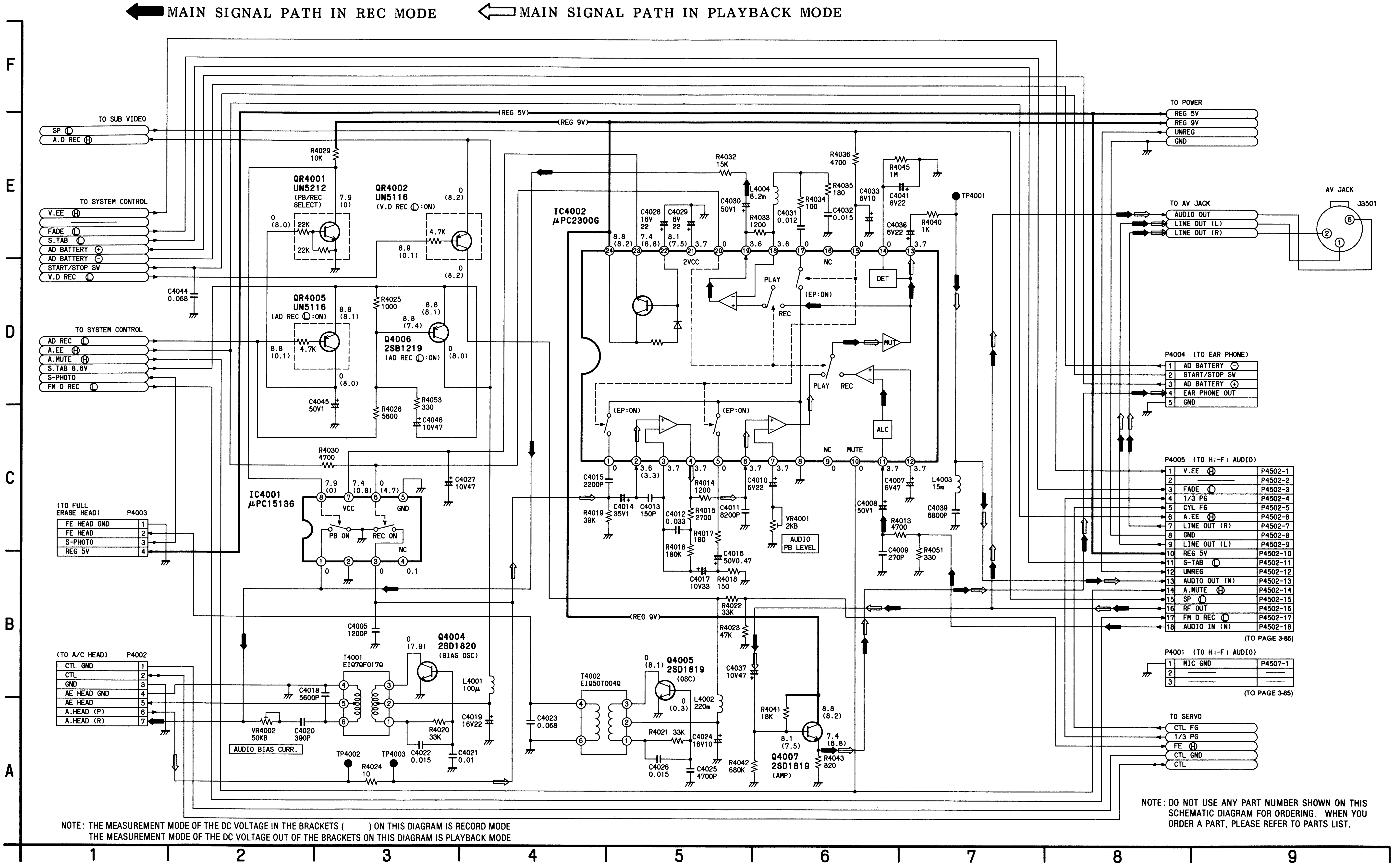
3-27. AUDIO S


F
E
D
C
B
A
TO SUB V
SP Ⓛ
A.D REC Ⓗ
TO SYSTEM CO
V.EE Ⓗ
FADE Ⓛ
S.TAB Ⓛ
AD BATTERY ⊕
AD BATTERY ⊖
START/STOP SW
V.D REC Ⓛ
TO SYSTEM CONT
AD REC Ⓛ
A.EE Ⓗ
A.MUTE Ⓗ
S.TAB 8.6V
S-PHOTO
FM D REC Ⓛ
(TO FULL ERASE HEAD)
FE HEAD GND
FE HEAD
S-PHOTO
REG 5V
(TO A/C HEAD)
CTL GND
CTL
GND
AE HEAD GND
AE HEAD
A.HEAD (P)
A.HEAD (R)
1

NOTE: THE MEAS
THE MEAS

Back Page:
SYSTEM CONTROL Section

3-27. AUDIO SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
TO SUB VIDEO
SP Ⓛ
A.D REC Ⓗ
TO SYSTEM CONTROL
V.EE Ⓗ
FADE Ⓛ
S.TAB Ⓛ
AD BATTERY ⊕
AD BATTERY ⊖
START/STOP SW
V.D REC Ⓛ
TO SYSTEM CONTROL
AD REC Ⓛ
A.EE Ⓗ
A.MUTE Ⓗ
S.TAB 8.6V
S-PHOTO
FM D REC Ⓛ
(TO FULL ERASE HEAD) P4003
FE HEAD GND
FE HEAD
S-PHOTO
REG 5V
(TO A/C HEAD) P4002
CTL GND
CTL
GND
AE HEAD GND
AE HEAD
A.HEAD (P)
A.HEAD (R)
(REG 5V)
(REG 9V)
QR4001 UN5212 (PB/REC SELECT)
QR4002 UN5116 (V.D REC Ⓛ:ON)
QR4005 UN5116 (AD REC Ⓛ:ON)
Q4006 2SB1219 (AD REC Ⓛ:ON)
IC4001 μPC1513G
VCC
GND
PB ON
REC ON
NC
IC4002 μPC2300G
2VCC
PLAY
REC
(EP:ON)
DET
MUT
ALC
NC
MUTE
AUDIO PB LEVEL
VR4001 2KB
Q4004 2SD1820 (BIAS OSC)
T4001 EIQ7QF017Q
VR4002 50KB
AUDIO BIAS CURR.
TP4002
TP4003
T4002 EIQ50T004Q
Q4005 2SD1819 (OSC)
Q4007 2SD1819 (AMP)
TP4001
TO POWER
REG 5V
REG 9V
UNREG
GND
TO AV JACK
AUDIO OUT
LINE OUT (L)
LINE OUT (R)
AV JACK
J3501
P4004 (TO EAR PHONE)
1 AD BATTERY ⊖
2 START/STOP SW
3 AD BATTERY ⊕
4 EAR PHONE OUT
5 GND
P4005 (TO Hi-Fi AUDIO)
1 V.EE Ⓗ P4502-1
2 P4502-2
3 FADE Ⓛ P4502-3
4 1/3 PG P4502-4
5 CYL FG P4502-5
6 A.EE Ⓗ P4502-6
7 LINE OUT (R) P4502-7
8 GND P4502-8
9 LINE OUT (L) P4502-9
10 REG 5V P4502-10
11 S-TAB Ⓛ P4502-11
12 UNREG P4502-12
13 AUDIO OUT (N) P4502-13
14 A.MUTE Ⓗ P4502-14
15 SP Ⓛ P4502-15
16 RF OUT P4502-16
17 FM D REC Ⓛ P4502-17
18 AUDIO IN (N) P4502-18
(TO PAGE 3-85)
P4001 (TO Hi-Fi AUDIO)
1 MIC GND P4507-1
2
3
(TO PAGE 3-85)
TO SERVO
CTL FG
1/3 PG
FE Ⓗ
CTL GND
CTL

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-28. MAIN [POWER SUPPLY, SERVO, SYSTEM CONTROL, SUB VIDEO, AUDIO Section] C.B.A

SYSTEM CONTROL Section on MAIN C.B.A.	
Transistor	
Q6001	E-7 Ⓒ
Q6003	E-15 Ⓕ
Q6005	F-15 Ⓕ
Q6006	D-13 Ⓕ
Transistor & Resistor	
QR6001	D-13 Ⓕ
QR6002	D-13 Ⓕ
QR6004	D-7 Ⓒ
QR6005	E-14 Ⓕ
QR6006	C-14 Ⓕ
QR6008	E-13 Ⓕ
QR6009	C-11 Ⓕ
QR6010	D-12 Ⓕ
QR6011	C-7 Ⓒ
QR6014	F-14 Ⓕ
QR6015	F-5 Ⓒ
QR6016	E-13 Ⓕ
QR6017	C-12 Ⓕ
QR6018	C-13 Ⓕ
QR6022	D-5 Ⓒ
QR6024	E-14 Ⓕ
Integrated Circuit	
IC6001	D-6 Ⓒ
IC6002	E-14 Ⓕ
IC6003	E-6 Ⓒ
IC6004	D-15 Ⓕ
IC6005	E-5 Ⓒ
IC6006	E-5 Ⓒ
IC6007	C-6 Ⓒ
Test Point	
TP6001	E-13 Ⓕ
TP6001	E-7 Ⓒ
TP6002	E-13 Ⓕ
TP6002	E-7 Ⓒ
Adjustment	
C6003	E-13 Ⓕ
VR6001	E-14 Ⓕ
Connector	
P6001	D-16 Ⓕ
P6001	D-4 Ⓒ
P6003	B-14 Ⓕ
P6003	B-5 Ⓒ
P6004	C-10 Ⓕ
P6004	D-9 Ⓒ
P6005	F-15 Ⓕ
P6005	F-5 Ⓒ
P6009	F-14 Ⓕ
P6009	F-5 Ⓒ
P6010	F-12 Ⓕ
P6010	F-7 Ⓒ
P6013	B-10 Ⓕ
P6013	B-10 Ⓒ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

POWER SUPPLY Section on MAIN C.B.A.	
Transistor	
Q1001	F-10 Ⓕ
Q1002	F-11 Ⓕ
Q1003	E-11 Ⓕ
Q1004	D-8 Ⓒ
Q1005	F-8 Ⓒ
Q1006	E-9 Ⓒ
Q1007	E-10 Ⓕ
Q1009	D-11 Ⓕ
Transistor & Resistor	
QR1001	D-13 Ⓕ
QR1002	F-11 Ⓕ
QR1004	F-12 Ⓕ
QR1005	D-8 Ⓒ
QR1006	D-11 Ⓕ
Integrated Circuit	
IC1001	D-8 Ⓒ
IC1002	D-12 Ⓕ
IC1003	D-12 Ⓕ
IC1004	E-11 Ⓕ
IC1005	D-12 Ⓕ
Test Point	
TP1001	E-12 Ⓕ
TP1001	E-7 Ⓒ
TP1002	E-11 Ⓕ
TP1002	E-8 Ⓒ
TP1003	E-12 Ⓕ
TP1003	E-7 Ⓒ
TP1004	E-13 Ⓕ
TP1004	E-7 Ⓒ
TP1005	E-13 Ⓕ
TP1005	E-7 Ⓒ
TP1006	E-11 Ⓕ
TP1006	E-8 Ⓒ
Adjustment	
VR1001	D-11 Ⓕ
VR1002	E-12 Ⓕ
VR1003	F-11 Ⓕ
Connector	
P1001	A-13 Ⓕ
P1001	A-7 Ⓒ
P1002	F-13 Ⓕ
P1002	F-6 Ⓒ
P1003	A-11 Ⓕ
P1003	A-9 Ⓒ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

SERVO Section on MAIN C.B.A.	
Transistor	
Q2001	A-8 Ⓒ
Transistor & Resistor	
QR2003	C-7 Ⓒ
QR2004	B-11 Ⓕ
QR2005	B-9 Ⓒ
QR2006	B-7 Ⓒ
QR2007	A-8 Ⓒ
QR2008	C-12 Ⓕ
Integrated Circuit	
IC2001	B-8 Ⓒ
IC2002	C-8 Ⓒ
IC2003	C-12 Ⓕ
Test Points	
TP2000	A-11 Ⓕ
TP2000	A-9 Ⓒ
TP2001	A-11 Ⓕ
TP2001	A-9 Ⓒ
TP2002	A-11 Ⓕ
TP2002	A-9 Ⓒ
Adjustment	
VR2001	B-11 Ⓕ
Connector	
P2001	B-12 Ⓕ
P2001	B-7 Ⓒ

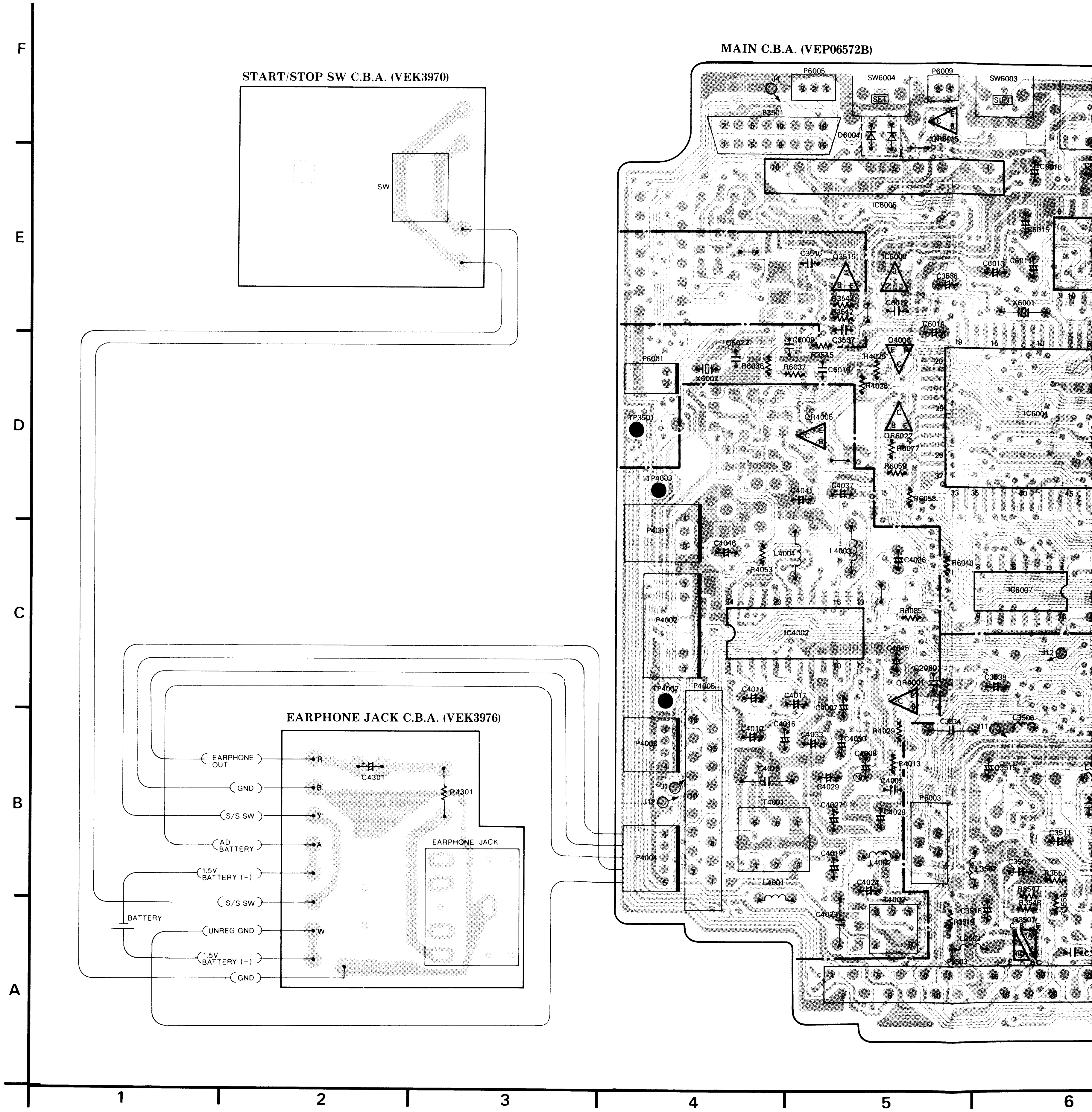
ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

SUB VIDEO Section on MAIN C.B.A.	
Transistor	
Q3505	A-13 Ⓕ
Q3507	A-6 Ⓒ
Q3510	A-14 Ⓕ
Q3511	A-13 Ⓕ
Q3515	E-5 Ⓒ
Q3516	E-15 Ⓕ
Q3521	A-6 Ⓒ
Transistor & Resistor	
QR3503	B-14 Ⓕ
QR3505	B-14 Ⓕ
QR3506	A-7 Ⓒ
QR3511	B-14 Ⓕ
QR3512	B-7 Ⓒ
QR3522	B-14 Ⓕ
Test Point	
TP3501	D-16 Ⓕ
TP3501	D-4 Ⓒ
Connector	
P3501	F-15 Ⓕ
P3501	C-4 Ⓒ
P3503	A-15 Ⓕ
P3503	A-5 Ⓒ
P3504	F-12 Ⓕ
P3504	F-7 Ⓕ

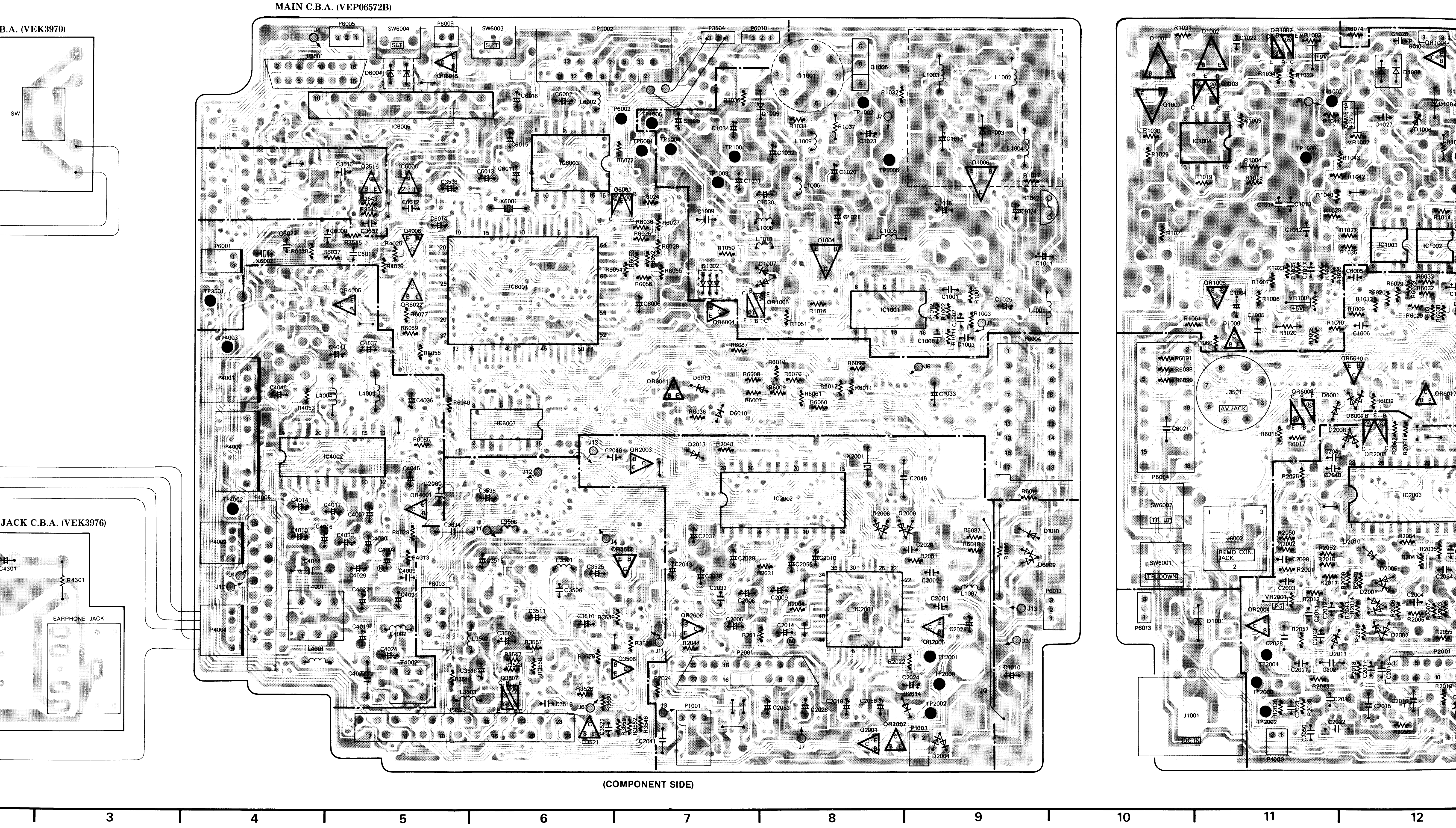
ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

AUDIO Section on MAIN C.B.A.	
Transistor	
Q4004	B-15 Ⓕ
Q4005	A-14 Ⓕ
Q4006	D-5 Ⓒ
Q4007	D-15 Ⓕ
Transistor & Resistor	
QR4001	C-5 Ⓒ
QR4002	A-15 Ⓕ
QR4005	D-5 Ⓒ
Integrated Circuit	
IC4001	C-15 Ⓕ
IC4002	C-5 Ⓒ
Test Point	
TP4002	B-16 Ⓕ
TP4002	C-4 Ⓒ
TP4003	D-16 Ⓕ
TP4003	D-4 Ⓒ
Adjustment	
VR4001	C-16 Ⓕ
VR4002	C-16 Ⓕ
Connector	
P4001	D-16 Ⓕ
P4001	C-4 Ⓒ
P4002	C-16 Ⓕ
P4002	C-4 Ⓒ
P4003	B-16 Ⓕ
P4003	B-4 Ⓒ
P4004	B-16 Ⓕ
P4004	B-4 Ⓒ
P4005	B-16 Ⓕ
P4005	C-4 Ⓒ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

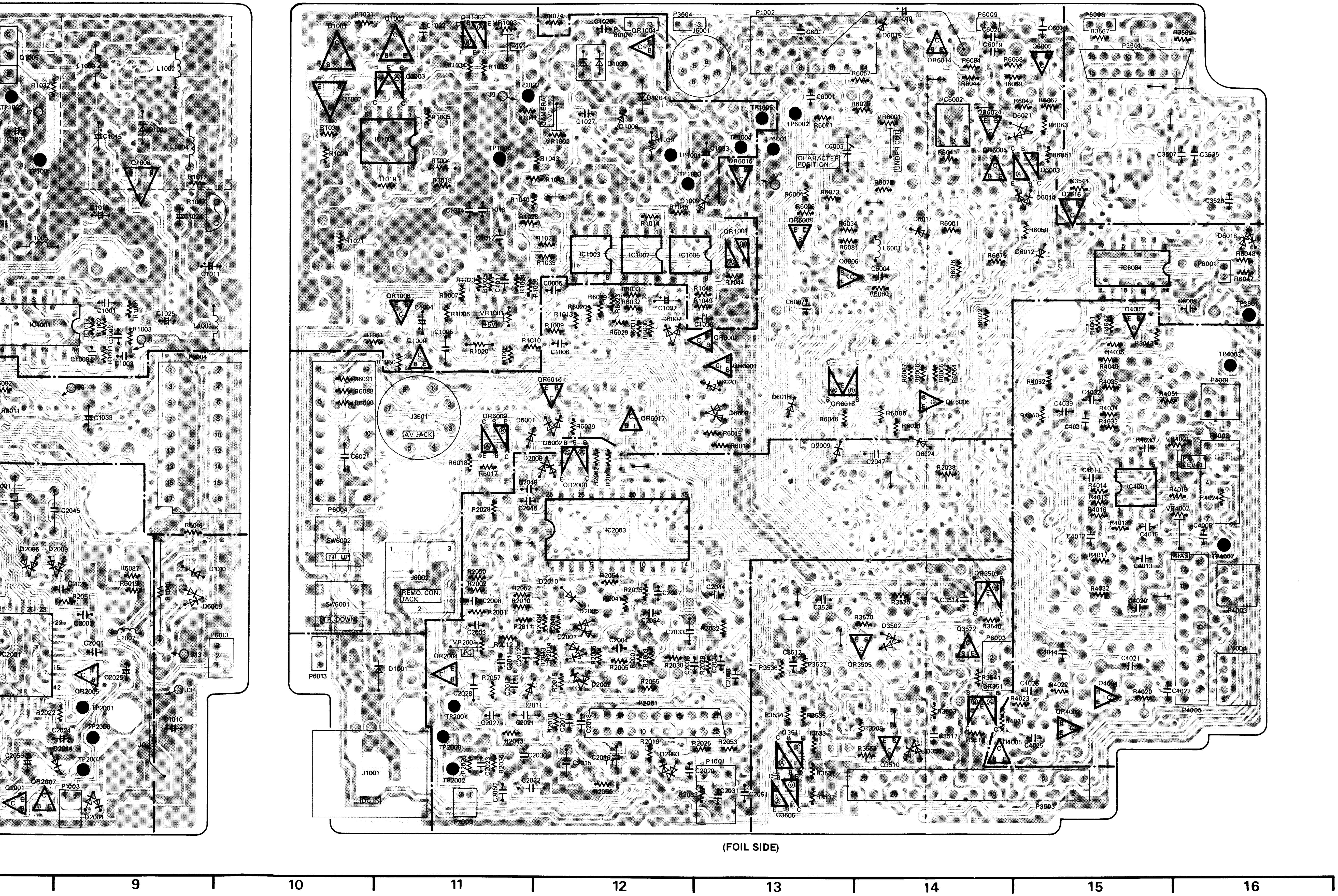

F
E
D
C
B
A
1
2
3
4
5
6
MAIN C.B.A. (VEP06572B)
START/STOP SW C.B.A. (VEK3970)
SW
EARPHONE JACK C.B.A. (VEK3976)
EARPHONE OUT
GND
S/S SW
AD BATTERY
1.5V BATTERY (+)
S/S SW
UNREG GND
1.5V BATTERY (−)
GND
BATTERY
R
B
Y
A
W
C4301
R4301
EARPHONE JACK
J4
P6005
SW6004
SET
P6009
SW6003
SHIFT
P3501
D6004
QR6015
C6016
IC6005
C6015
C3516
Q3515
IC6006
R3542
C3536
C6013
C6011
C6012
X6001
C6014
C6022
C6009
C3537
Q4006
R3545
R6038
R6037
C6010
R4025
R4026
P6001
X6002
TP3501
QR4005
QR6022
R6077
R6059
IC6001
TP4003
C4041
C4037
R6058
P4001
C4046
L4004
L4003
C4036
R4053
R6040
IC6007
P4002
IC4002
R6085
C4045
C2080
QR4001
J12
TP4002
P4005
C4014
C4017
C4007
C3538
L3506
C3534
P4003
C4010
C4016
C4033
C4030
R4029
C4008
R4013
C4018
C4029
C4009
P6003
J1
T4001
C4027
C4028
C3515
P4004
C4019
L4002
C3511
L3502
C3502
R3557
L4001
C4024
T4002
R3547
R3548
C4023
C3518
R3519
Q3507
L3503
P3503

SERVO, SYSTEM CONTROL, SUB VIDEO, AUDIO Section] C.B.A. (VEP06572B)


MAIN C.B.A. (VEP06572B)
B.A. (VEK3970)
JACK C.B.A. (VEK3976)
SW
EARPHONE JACK
P3501
SW6004
SW6003
P1002
P3504
P6010
IC6005
IC6006
IC6003
IC6004
IC6007
IC4002
IC2002
IC2001
IC1001
IC1004
IC1003
IC1002
IC2003
T1001
T4001
T4002
J3501
AV JACK
J6002
REMO. CON. JACK
J1001
DC IN
SW6002
TR. UP
SW6001
TR. DOWN
P6004
P6013
P2001
P1001
P1003
P4001
P4002
P4003
P4004
P4005
TP1002
TP1006
TP2000
TP2001
TP2002
CAMERA +9V
+9V
+5V
PG
3
4
5
6
7
8
9
10
11
12

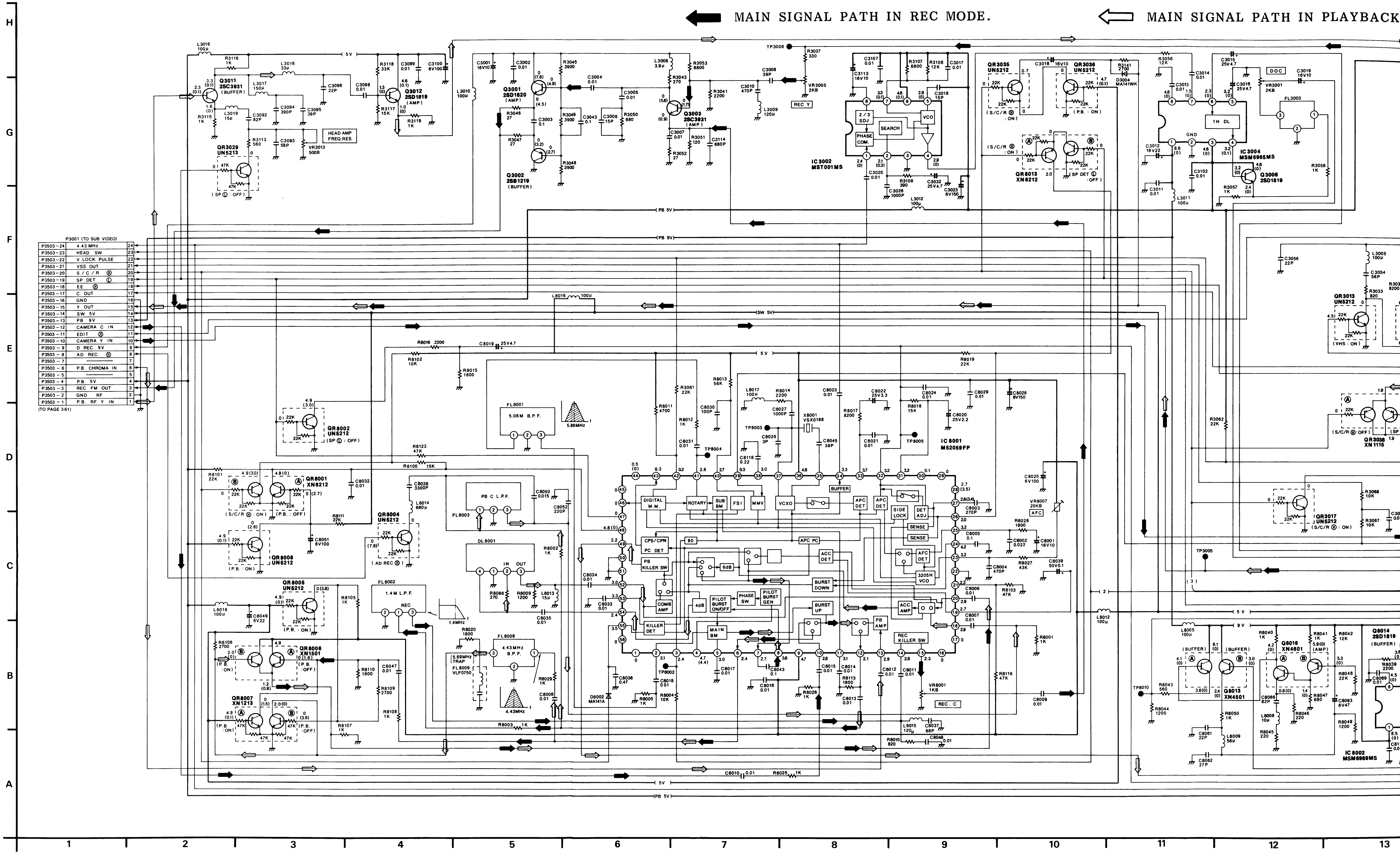
(COMPONENT SIDE)

MAIN C.B.A. (VEP06572B)

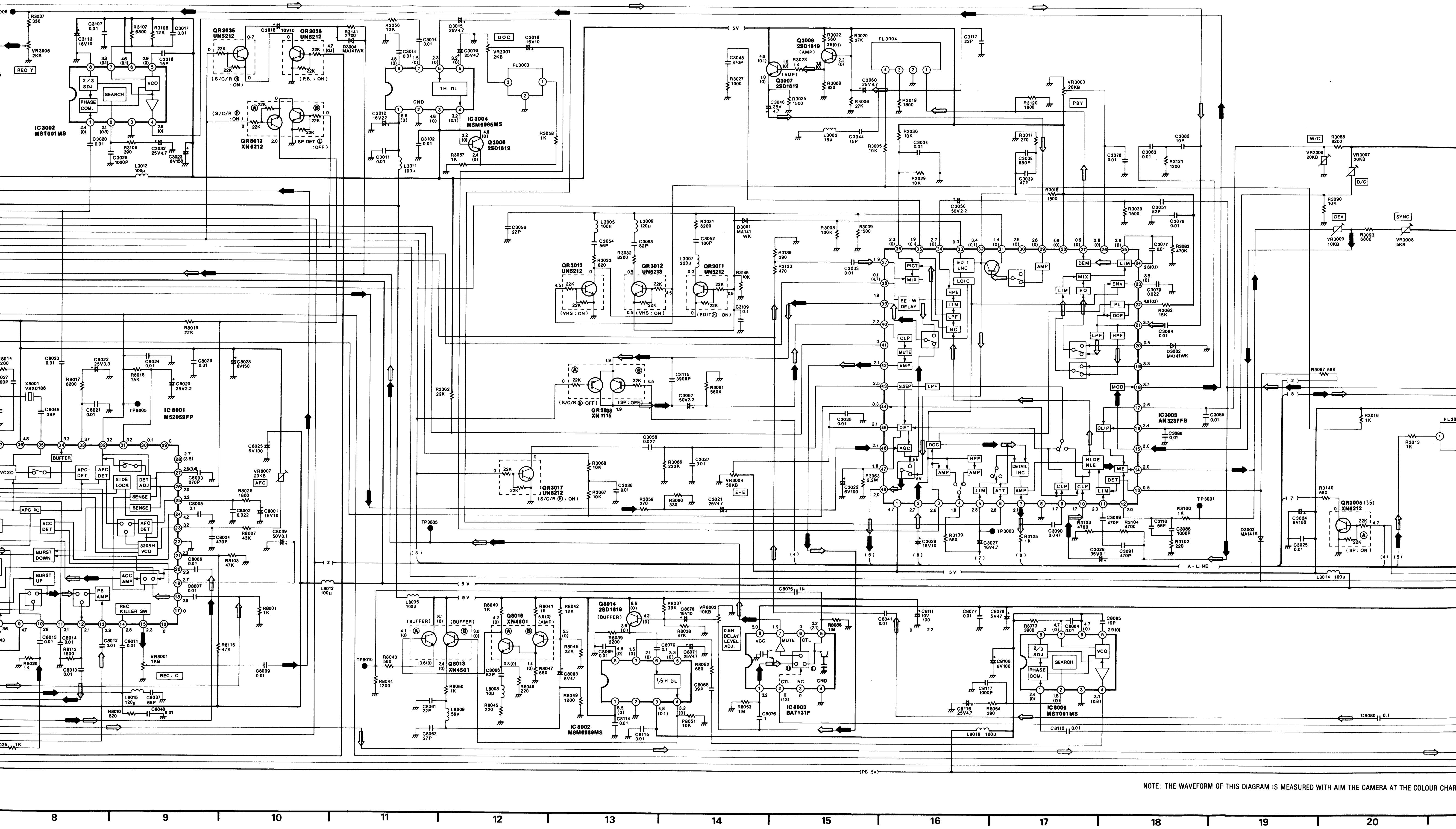

(FOIL SIDE)
9
10
11
12
13
14
15
16
IC1001
IC1002
IC1003
IC1004
IC1005
IC2003
IC4001
IC6002
IC6004
P1001
P1002
P1003
P2001
P3501
P3503
P3504
P4001
P4002
P4003
P4004
P4005
P6001
P6003
P6004
P6005
P6009
P6013
J1001
J3501
J6001
J6002
SW6001
SW6002
CAMERA 9V
+9V
+5V
CHARACTER POSITION
UNDER CUT
AV JACK
TR. UP
TR. DOWN
REMO. CON. JACK
DC IN
PG
BIAS
PB LEVEL
VR1001
VR1002
VR1003
VR2001
VR4001
VR4002
VR6001
TP1001
TP1002
TP1003
TP1004
TP1005
TP1006
TP2000
TP2001
TP2002
TP3501
TP4002
TP4003
TP6001
TP6002

Next Page:
LUMINANCE &
CHROMINANCE PACK Section

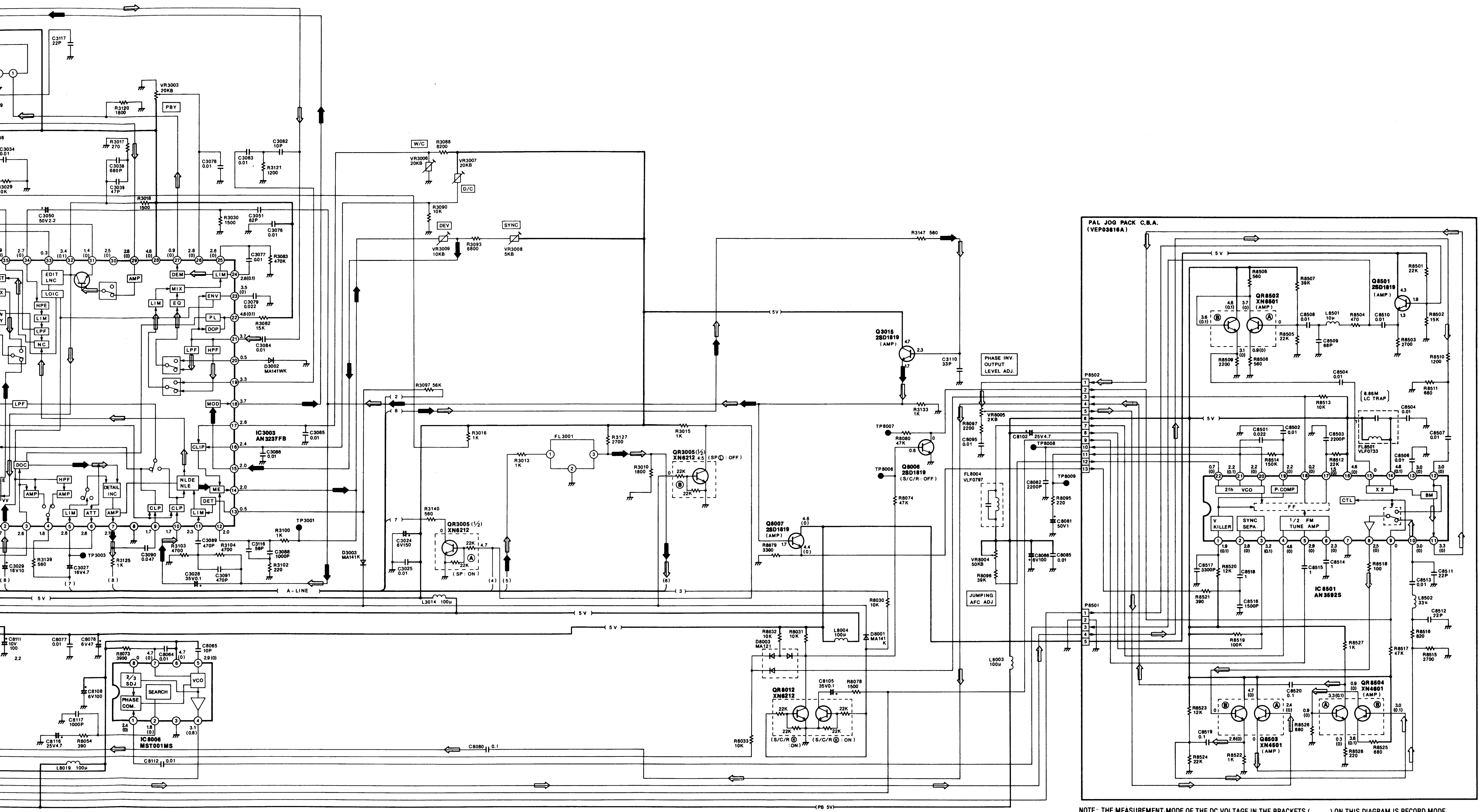
3-29. LUMINANCE, CHROMINANCE & PAL JOG SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE.
MAIN SIGNAL PATH IN PLAYBACK
P3001 (TO SUB VIDEO)
P3503－24 4.43 MHz 24
P3503－23 HEAD SW 23
P3503－22 V LOCK PULSE 22
P3503－21 VSS OUT 21
P3503－20 S/C/R Ⓡ 20
P3503－19 SP DET Ⓛ 19
P3503－18 EE Ⓡ 18
P3503－17 C OUT 17
P3503－16 GND 16
P3503－15 Y OUT 15
P3503－14 SW 5V 14
P3503－13 PB 9V 13
P3503－12 CAMERA C IN 12
P3503－11 EDIT Ⓡ 11
P3503－10 CAMERA Y IN 10
P3503－9 D REC 9V 9
P3503－8 AD REC Ⓡ 8
P3503－7 7
P3503－6 P.B. CHROMA IN 6
P3503－5 5
P3503－4 P.B. 5V 4
P3503－3 REC FM OUT 3
P3503－2 GND RF 2
P3503－1 P.B. RF Y IN 1
(TO PAGE 3-61)
Q3011 2SC3931 (BUFFER)
Q3012 2SD1819 (AMP)
QR3029 UN5213 (SP Ⓛ : OFF)
HEAD AMP FREQ.RES.
Q3001 2SD1820 (AMP)
Q3002 2SB1219 (BUFFER)
Q3003 2SC3931 (AMP)
TP3006
REC Y
IC3002 MST001MS
2/3 SDJ
PHASE COM.
SEARCH
VCO
QR3035 UN5212 (S/C/R Ⓡ : ON)
QR3036 UN5212 (P.B. : ON)
D3004 MA141WK
QR8013 XN6212 (S/C/R Ⓡ : ON) (SP DET Ⓛ : OFF)
DOC
1H DL
IC3004 MSM6965MS
Q3006 2SD1819
FL3003
(PB 5V)
(PB 9V)
(SW 5V)
(5V)
(9V)
L8016 100μ
QR3013 UN5212 (VHS : ON)
QR8002 UN5212 (SP Ⓛ : OFF)
FL8001 5.06M B.P.F. 5.06MHz
IC8001 M52059FP
X8001 VSX0188
TP8003 TP8004 TP8005
DIGITAL M.M.
ROTARY
SUB BM
FSI
MMV
VCXO
BUFFER
APC DET
SIDE LOCK
DET ADJ
SENSE
CPS/CPN PC DET
APC PC
PB KILLER SW
6dB
ACC DET
AFC DET
BURST DOWN
3205H VCO
COMB AMP
4dB
PILOT BURST ON/OFF
PHASE SW
PILOT BURST GEN
BURST UP
KILLER DET
MAIN BM
ACC AMP
PB AMP
REC KILLER SW
REC. C
VR8001 1KB
VR8007 20KB AFC
QR3038 XN1115 (S/C/R Ⓡ : OFF)
QR3017 UN5212 (S/C/R Ⓡ : ON)
QR8001 XN6212 (S/C/R Ⓡ : ON) (P.B. : OFF)
QR8008 UN5212 (P.B. : ON)
QR8004 UN5212 (AD REC Ⓡ)
QR8005 UN5212 (P.B. : ON)
QR8006 XN1501 (P.B. : ON) (P.B. : OFF)
QR8007 XN1213 (P.B. : ON) (P.B. : OFF)
FL8003 PB C L.P.F.
DL8001 IN OUT
FL8002 1.4M L.P.F. REC 1.4MHz
FL8008 4.43MHz B.P.F. 4.43MHz
FL8009 VLF0750 (5.69MHz TRAP)
TP8002
D8002 MA141A
TP3005
TP8010
Q8016 XN4601 (AMP)
Q8013 XN4501 (BUFFER) (BUFFER)
Q8014 2SD1819 (BUFFER)
IC8002 MSM6969MS
H G F E D C B A
1 2 3 4 5 6 7 8 9 10 11 12 13

SIGNAL PATH IN REC MODE. ⇦ MAIN SIGNAL PATH IN PLAYBACK MODE.


IC 3002 MST001MS
QR3035 UN5212
QR3036 UN5212
QR8013 XN6212
IC 3004 MSM6965MS
Q3006 2SD1819
1H DL
FL3003
DOC
Q3009 2SD1819
Q3007 2SD1819
FL3004
QR3013 UN5212
QR3012 UN5213
QR3011 UN5212
QR3038 XN1115
QR3017 UN5212
IC 8001 M52059FP
X8001 VSX0188
IC3003 AN3237FB
QR3005 (1/2) XN6212
Q8013 XN4501
Q8016 XN4601
Q8014 2SD1819
IC 8002 MSM6989MS
1/2H DL
IC 8003 BA7131F
0.5H DELAY LEVEL ADJ.
IC 8006 MST001MS
REC Y
PBY
W/C
D/C
DEV
SYNC
E-E
REC. C
A-LINE
PB 5V
5 V
9 V
8
9
10
11
12
13
14
15
16
17
18
19
20

NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOUR CHAR



PAL JOG PACK C.B.A.
(VEP03816A)
IC3003
AN3237FB
IC8006
MST001MS
IC8501
AN3592S
QR3005 (1/2)
XN6212
Q3015
2SD1819
(AMP)
Q8006
2SD1819
(S/C/R : OFF)
Q8007
2SD1819
(AMP)
QR8012
XN6212
Q8501
2SD1819
(AMP)
QR8502
XN8501
(AMP)
QR8503
XN4501
(AMP)
QR8504
XN4801
(AMP)
W/C
D/C
DEV
SYNC
PBY
VR3003
20KB
VR3006
20KB
VR3007
20KB
VR3009
10KB
VR3008
5KB
VR8004
50KB
VR8005
2KB
FL3001
FL8004
VLF0797
FL8501
VLF0733
PHASE INV.
OUTPUT
LEVEL ADJ.
JUMPING
AFC ADJ
8.86M
LC TRAP
EDIT
LNC
LOIC
HPE
LIM
LPF
NC
DEM
MIX
EQ
ENV
PL
DOP
HPF
MOD
CLIP
DOC
AMP
ATT
DETAIL
INC
CLP
NLDE
NLE
ME
DET
2/3
SDJ
SEARCH
VCO
PHASE
COM.
2fh
P.COMP
V
KILLER
SYNC
SEPA.
1/2 FM
TUNE AMP
FF
CTL
X 2
BM
D3002
MA141WK
D3003
MA141K
D8003
MA121
D8001
MA141
L3014 100μ
L8004 100μ
L8003 100μ
L8019 100μ
L8501 10μ
L8502 33μ
TP3001
TP3003
TP8006
TP8007
TP8008
TP8009
P8502
P8501
5V
A-LINE
PB 5V
(SP : ON)
(SP : OFF)
(S/C/R : ON)
16
17
18
19
20
21
22
23
24
25
26
27
28

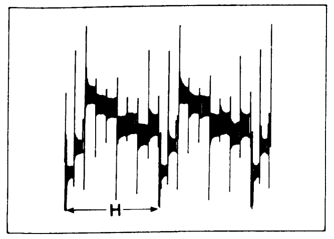
NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOUR CHART.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

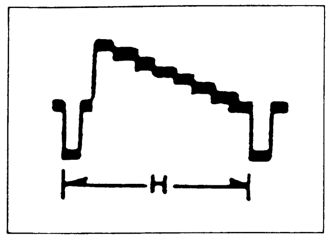
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

3-30. LUMINANCE & CHROMINANCE PACK C.B.A. (VEP03617B) & PAL JOG PACK C.B.A. (VEP03616A)

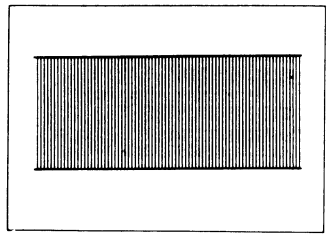
LUMINANCE & CHROMINANCE CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 3000 Series)



TP3001 REC
0.2V/20µsec. div. 0.75Vp-p

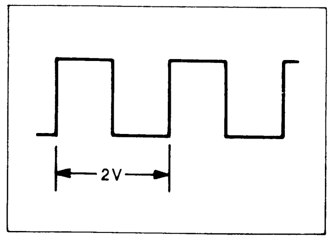


TP3005 REC/PLAY
0.1V/20µsec. div. 2Vp-p

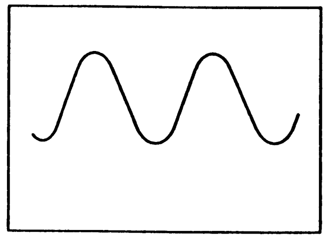


TP3006 REC
0.2V/20µsec. div. 1.2Vp-p

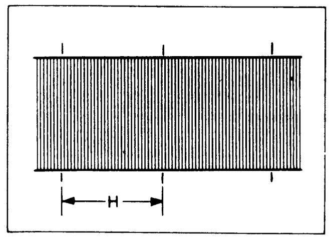
LUMINANCE & CHROMINANCE CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 8000 Series)



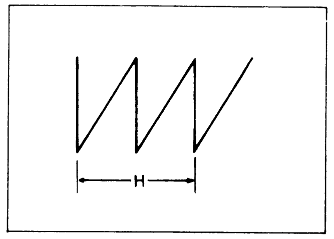
TP8002 REC/PLAY
1V/10msec. div. 4.0Vp-p



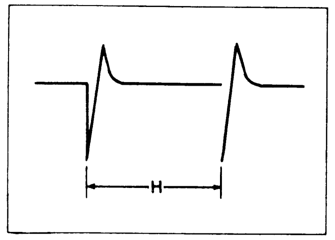
TP8003 REC/PLAY
0.1V/0.1µsec. div. 0.5Vp-p



TP8004 REC/PLAY
0.2V/20µsec. div. 0.7Vp-p

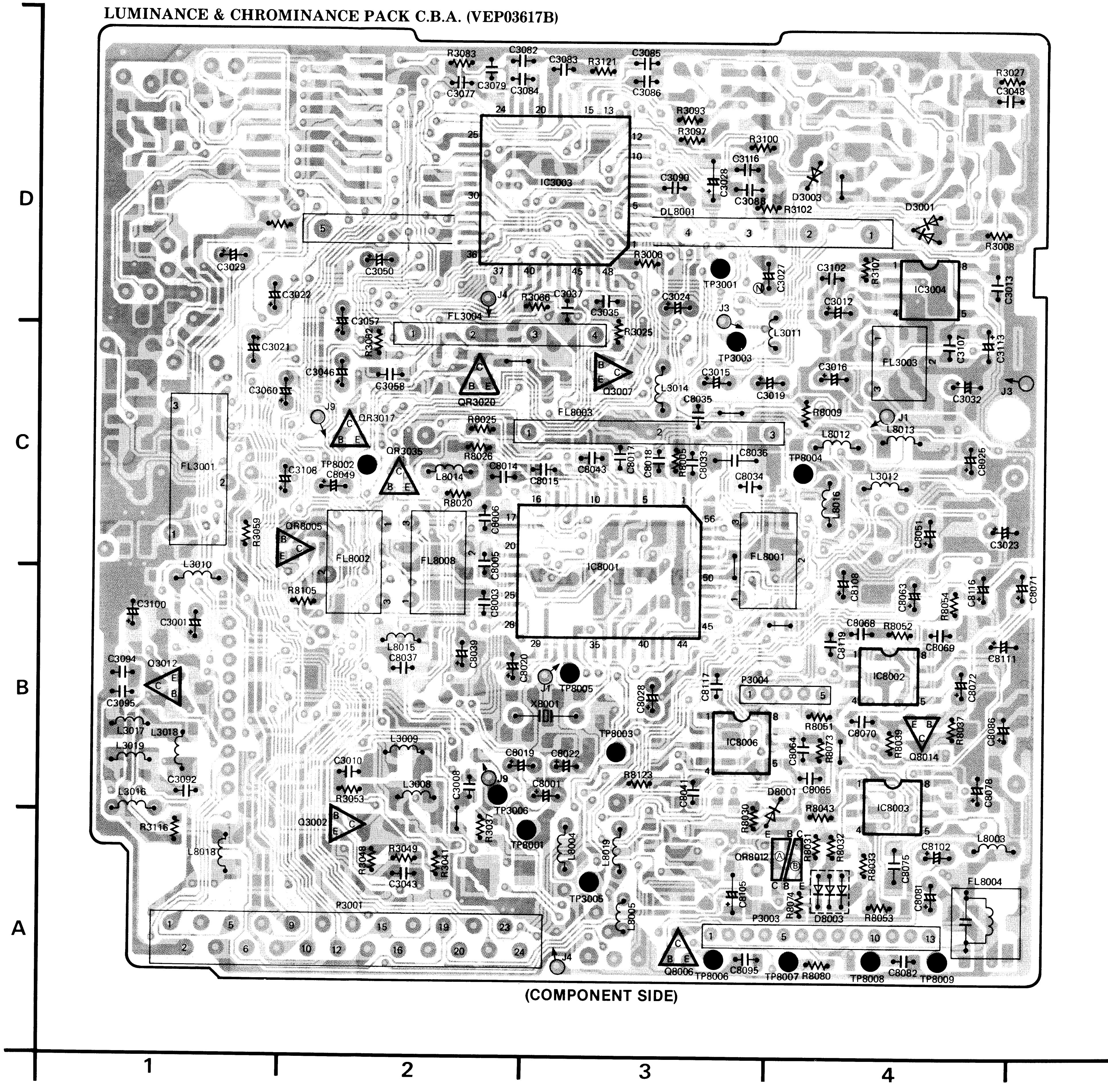


TP8008 PLAY
0.5V/20µsec. div. 2.2Vp-p



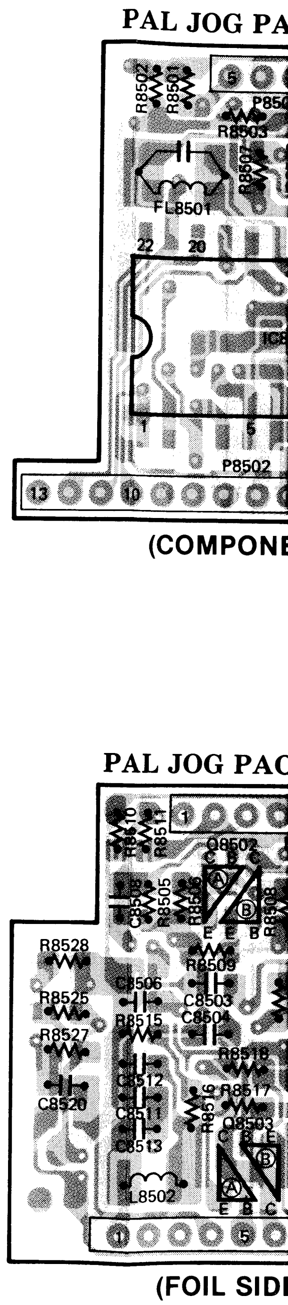
TP8009 PLAY
50mV/20µsec. div. 230mVp-p

LUMINANCE & CHROMINANCE PACK C.B.A. (VEP03617B)


D
C
B
A
1
2
3
4
5
IC3003
IC3004
IC8001
IC8002
IC8003
IC8006
FL3001
FL3003
FL3004
FL8001
FL8002
FL8003
FL8004
FL8008
DL8001
TP3001
TP3003
TP3005
TP3006
TP8001
TP8002
TP8003
TP8004
TP8005
TP8006
TP8007
TP8008
TP8009
Q3002
Q3007
Q3012
Q8006
Q8014
QR3017
QR3020
QR3035
QR8005
QR8012
X8001
P3001
P3003
P3004
D3001
D3003
D8001
D8003
J1
J3
J4
J9

(COMPONENT SIDE)

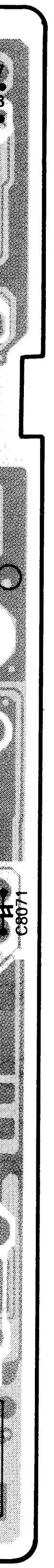
PAL JOG PA


PAL JOG PAC
P8502
FL8501
L8502

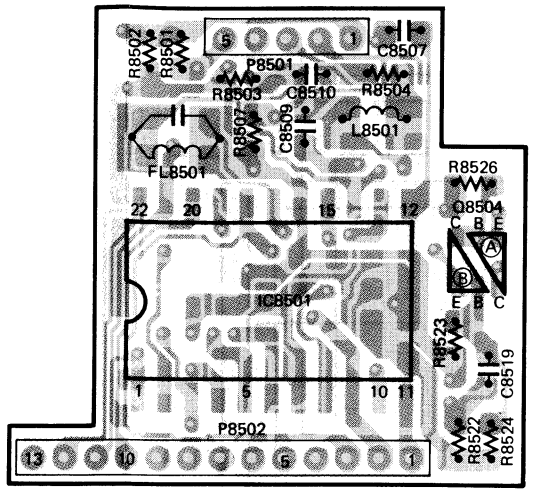
(COMPONE

(FOIL SID

VEP03616A)

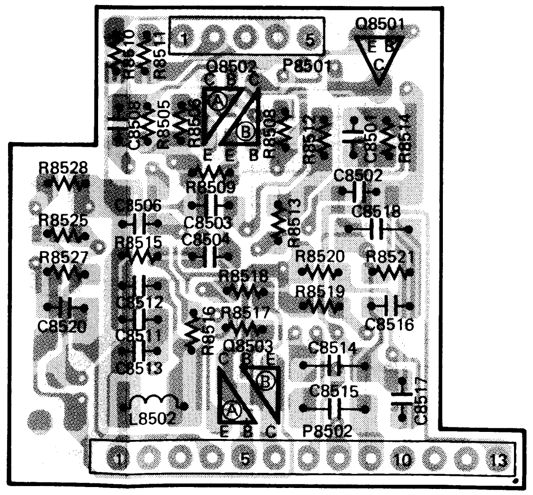


PAL JOG PACK C.B.A. (VEP03616A)


P8501
C8507
R8502
R8501
R8503
C8510
R8504
L8501
FL8501
R8507
C8509
R8526
Q8504
IC8501
R8523
C8519
R8522
R8524
P8502
22
20
15
12
1
5
10
11
13
10
5
1

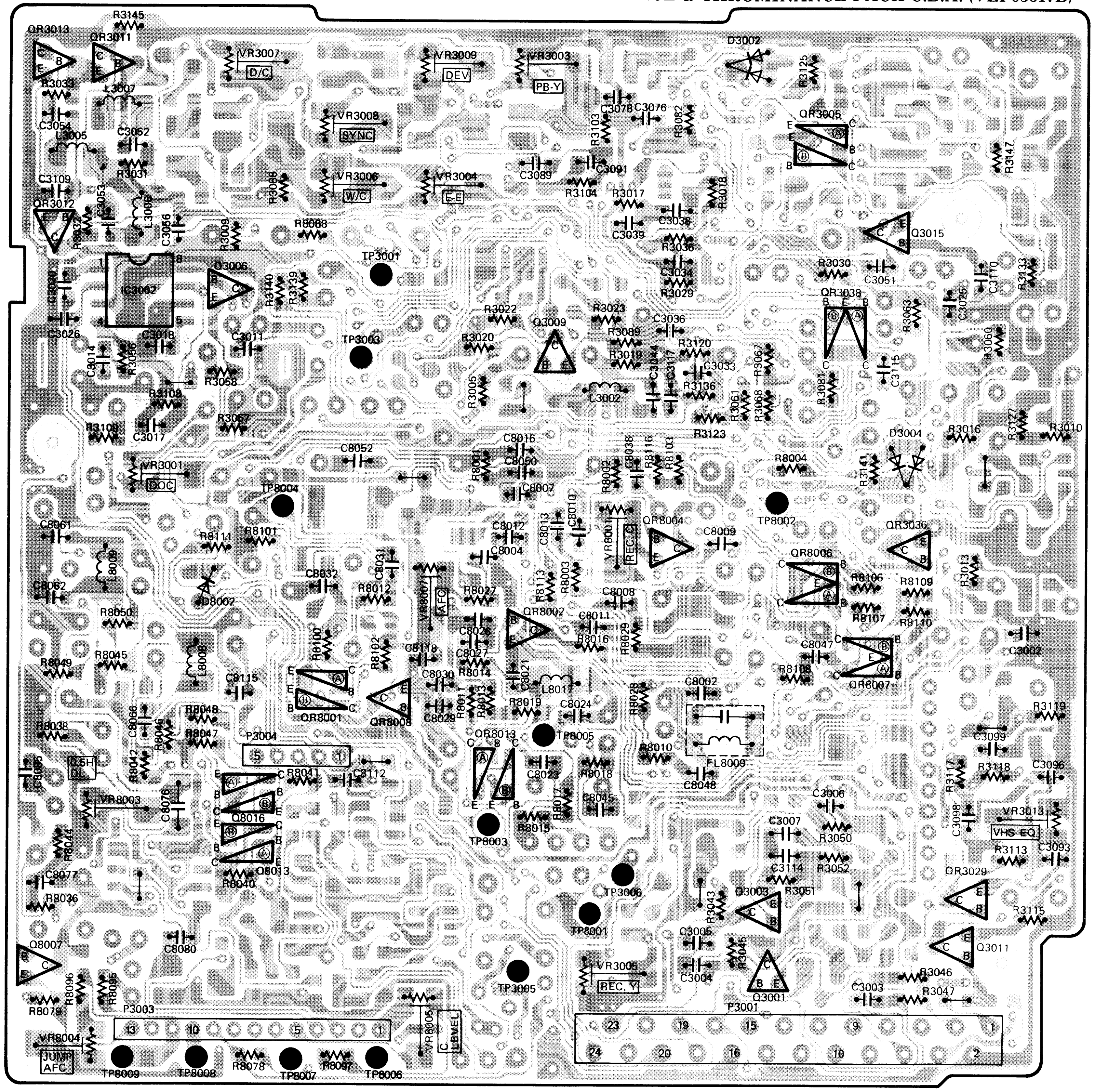
(COMPONENT SIDE)

PAL JOG PACK C.B.A. (VEP03616A)


Q8501
Q8502
P8501
R8510
R8511
R8505
R8528
R8525
R8527
R8509
C8503
C8504
C8506
R8515
R8513
C8502
C8518
R8518
R8520
R8521
R8519
R8517
R8516
C8520
C8512
C8511
C8513
Q8503
C8514
C8516
C8515
P8502
C8517
L8502
1
5
10
13

(FOIL SIDE)

LUMINANCE & CHROMINANCE PACK C.B.A. (VEP03617B)


R3145
QR3013
QR3011
VR3007
D/C
VR3009
DEV
VR3003
PB-Y
D3002
R3125
R3033
L3007
C3054
VR3008
SYNC
C3078
C3076
QR3005
L3005
C3052
R3031
R3103
R3082
C3109
VR3006
W/C
VR3004
E-E
C3089
C3091
R3147
QR3012
C3053
L3006
C3056
R3088
R3104
R3017
R3018
R3009
R8088
C3039
C3038
Q3015
R3032
IC3002
Q3006
TP3001
R3036
C3020
R3140
R3139
C3034
R3030
C3051
R3133
C3110
R3029
QR3038
C3025
C3026
C3018
C3011
R3022
R3023
Q3009
C3036
R3063
R3060
C3014
R3056
TP3003
R3020
R3089
R3019
R3120
R3058
C3033
C3115
R3108
R3005
R3067
R3061
R3136
L3002
R3081
R3123
C3117
C3044
R3068
R3057
C3017
R3109
R3016
R3127
R3010
D3004
C8016
C8060
R8001
VR3001
DOC
C8052
R8002
C8038
R8116
R8103
R8004
R3141
TP8004
C8007
TP8002
C8061
C8012
C8004
C8013
C8010
VR8001
REC C
QR8004
C8009
QR3036
R8111
R8101
L8009
C8031
QR8006
C8062
C8032
R8012
VR8007
AFC
R8027
R8113
R8003
R8106
R8109
R3013
D8002
R8050
C8008
R8107
R8110
C3002
R8100
C8026
QR8002
C8011
R8029
R8016
C8047
L8008
R8102
C8118
C8027
R8045
C8030
R8014
C8021
L8017
R8108
QR8007
R8049
C8115
QR8008
C8002
C8029
R8011
R8019
C8024
R8028
R3119
QR8001
R8048
C8066
R8046
R8047
R8038
QR8013
TP8005
C3099
P3004
FL8009
R8010
C3005
0.5H DL
R8042
R8041
C8112
C8023
R8018
C8048
R3117
R3118
C3096
VR8003
C8076
Q8016
R8017
C8045
C3006
R8015
C3098
VR3013
VHS EQ
R8044
TP8003
C3007
R3050
R3113
C3093
R8040
Q8013
C3114
R3052
QR3029
C8077
TP3006
R8036
Q3003
R3051
R3043
R3115
TP8001
C3005
Q8007
C8080
R3045
Q3011
VR3005
REC. Y
C3004
R3046
TP3005
Q3001
R8096
R8095
C3003
R3047
R8079
P3003
VR8006
C LEVEL
P3001
VR8004
JUMP AFC
TP8009
TP8008
R8078
TP8007
R8097
TP8006
13
10
5
1
23
19
15
9
1
24
20
16
10
2

(FOIL SIDE)

LUMINANCE & CHROMINANCE PACK C.B.A. & PAL JOG PACK C.B.A.

Transistor		
Q3001	A-9	Ⓕ
Q3002	A-2	Ⓒ
Q3003	B-9	Ⓕ
Q3006	D-7	Ⓕ
Q3007	C-3	Ⓒ
Q3009	D-8	Ⓕ
Q3011	A-10	Ⓕ
Q3012	B-1	Ⓒ
Q3015	D-10	Ⓕ
Q8006	A-3	Ⓒ
Q8007	A-7	Ⓕ
Q8013	B-7	Ⓕ
Q8014	B-4	Ⓒ
Q8016	B-7	Ⓕ
Q8501	B-6	Ⓕ
Q8502	B-5	Ⓕ
Q8503	A-6	Ⓕ
Q8504	C-6	Ⓒ

Transistor & Resistor		
QR3005	D-9	Ⓕ
QR3011	D-7	Ⓕ
QR3012	D-7	Ⓕ
QR3013	D-7	Ⓕ
QR3017	C-2	Ⓒ
QR3020	C-2	Ⓒ
QR3029	B-10	Ⓕ
QR3035	C-2	Ⓒ
QR3036	C-10	Ⓕ
QR3038	D-10	Ⓕ
QR8001	B-8	Ⓕ
QR8002	C-8	Ⓕ
QR8004	C-9	Ⓕ
QR8005	C-2	Ⓒ
QR8006	C-9	Ⓕ
QR8007	B-10	Ⓕ
QR8008	B-8	Ⓕ
QR8012	A-3	Ⓒ
QR8013	B-8	Ⓕ

Integrated Circuit		
IC3002	D-7	Ⓕ
IC3003	D-3	Ⓒ
IC3004	D-4	Ⓒ
IC8001	C-3	Ⓒ
IC8002	B-4	Ⓒ
IC8003	B-4	Ⓒ
IC8006	B-3	Ⓒ

Test Point		
TP3001	D-3	Ⓒ
TP3001	D-8	Ⓕ
TP3003	C-3	Ⓒ
TP3003	D-8	Ⓕ
TP3005	A-3	Ⓒ
TP3005	A-8	Ⓕ
TP3006	B-2	Ⓒ
TP3006	B-9	Ⓕ
TP8001	A-3	Ⓒ
TP8001	A-9	Ⓕ
TP8002	C-2	Ⓒ
TP8002	C-9	Ⓕ
TP8003	B-3	Ⓒ
TP8003	B-8	Ⓕ
TP8004	C-4	Ⓒ
TP8004	C-7	Ⓕ
TP8005	B-3	Ⓒ
TP8005	B-9	Ⓕ
TP8006	A-3	Ⓒ
TP8006	A-8	Ⓕ
TP8007	A-4	Ⓒ
TP8007	A-8	Ⓕ
TP8008	A-4	Ⓒ
TP8008	A-7	Ⓕ
TP8009	A-4	Ⓒ
TP8009	A-7	Ⓕ

Adjustment		
VR3001	C-7	Ⓕ
VR3003	D-8	Ⓕ
VR3004	D-8	Ⓕ
VR3005	A-9	Ⓕ
VR3006	D-8	Ⓕ
VR3007	D-7	Ⓕ
VR3008	D-8	Ⓕ
VR3009	D-8	Ⓕ
VR3013	B-10	Ⓕ
VR8001	C-9	Ⓕ
VR8003	B-7	Ⓕ
VR8004	A-7	Ⓕ
VR8005	A-8	Ⓕ
VR8007	C-8	Ⓕ

Connector		
P3001	A-2	Ⓒ
P3001	A-9	Ⓕ
P3003	A-4	Ⓒ
P3003	A-7	Ⓕ
P3004	B-3	Ⓒ
P3004	B-7	Ⓕ
P8501	D-6	Ⓒ
P8501	B-6	Ⓕ
P8502	C-6	Ⓒ
P8502	A-6	Ⓕ

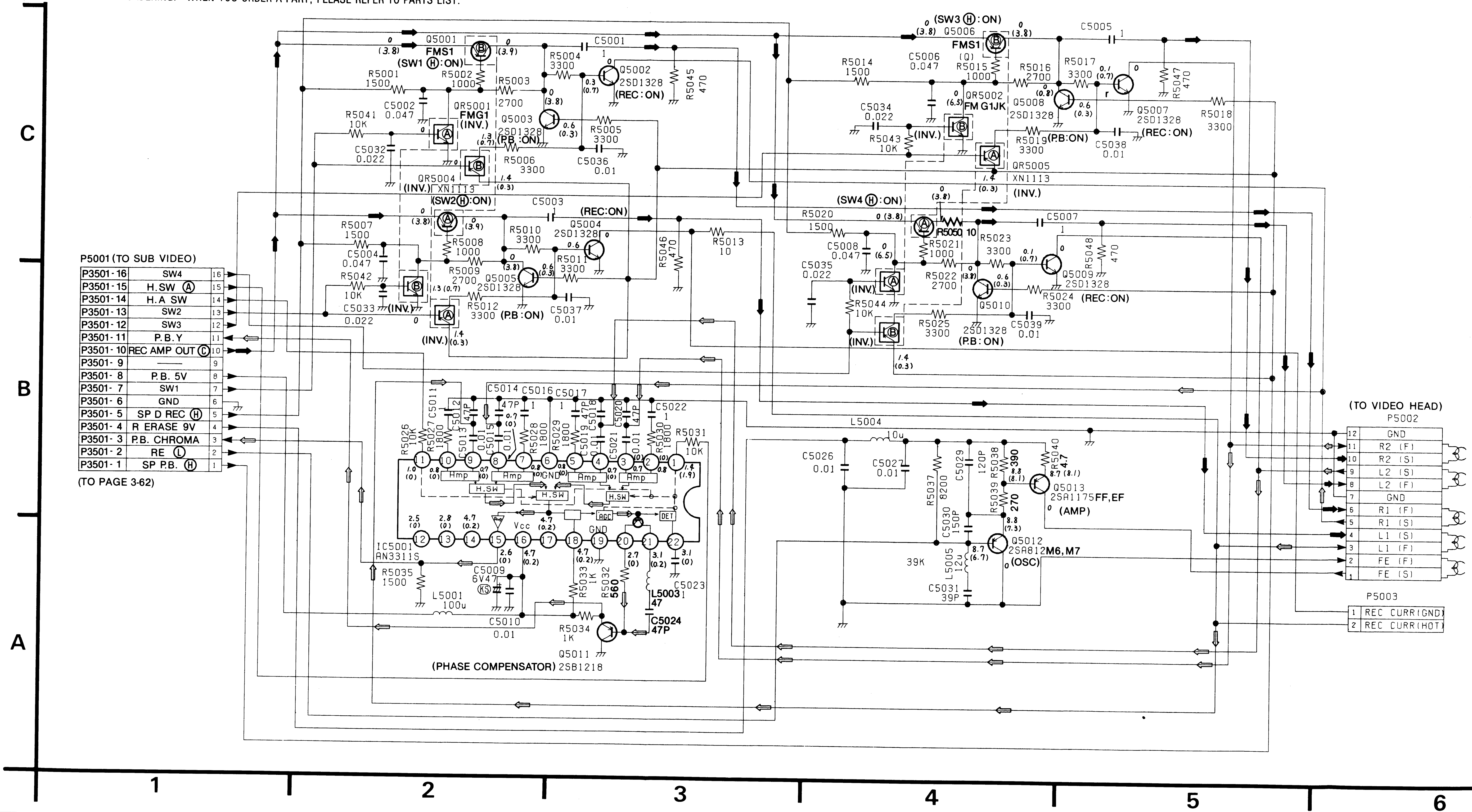
ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

3-31. VIDEO HEAD AMP SCHEMATIC DIAGRAM

➡ MAIN SIGNAL PATH IN REC MODE. ⇦ MAIN SIGNAL PATH IN PLAYBACK MODE.

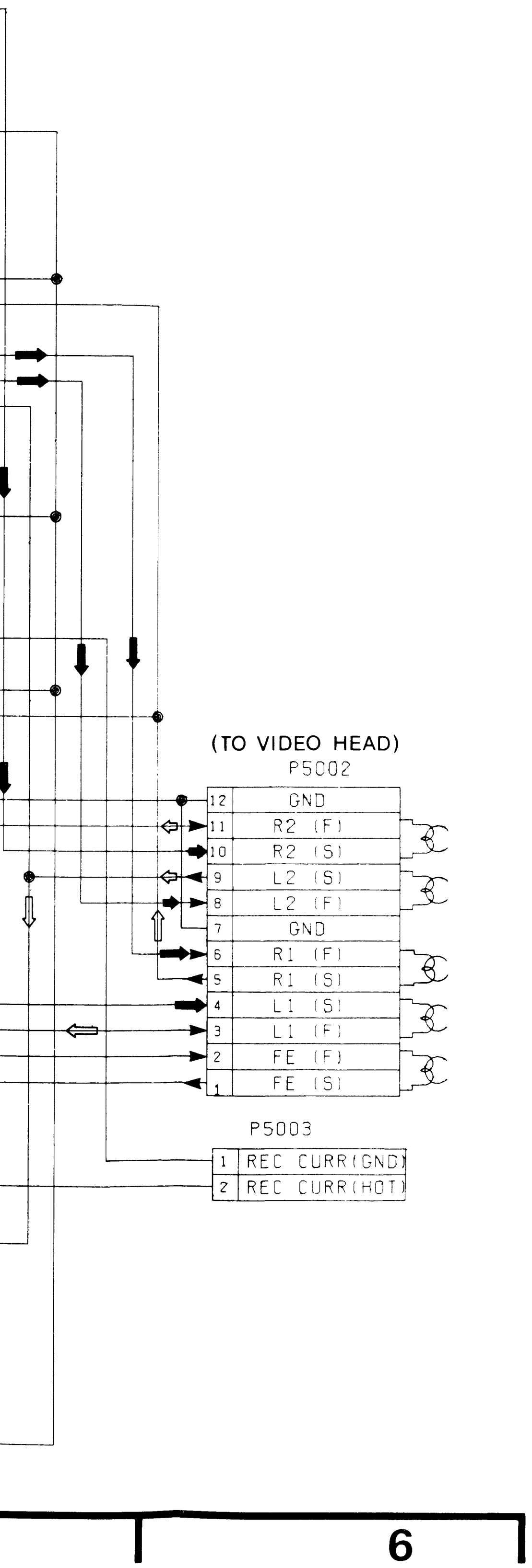
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

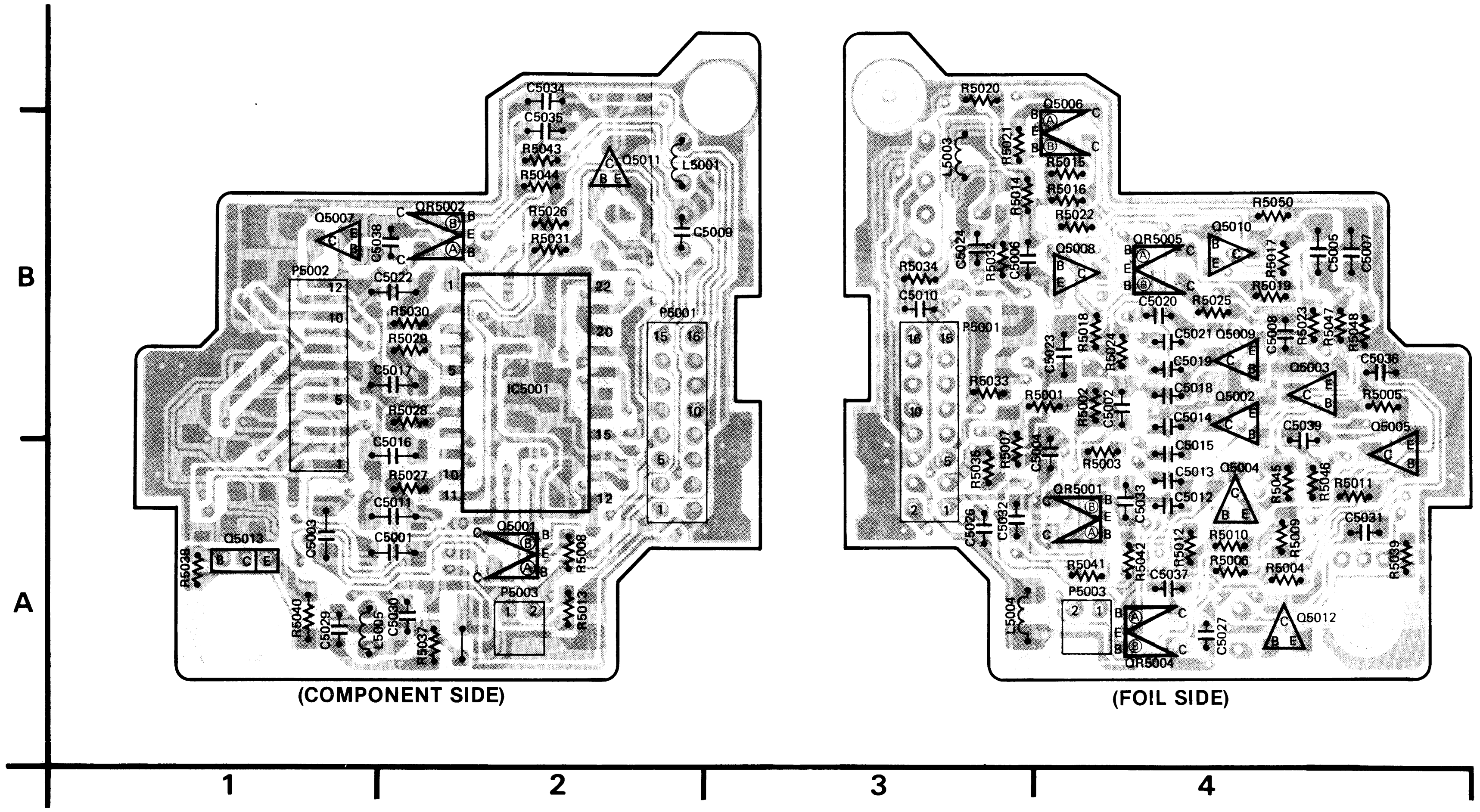


C
B
A
1
2
3
4
5
6
P5001 (TO SUB VIDEO)
P3501-16 SW4 16
P3501-15 H.SW Ⓐ 15
P3501-14 H.A SW 14
P3501-13 SW2 13
P3501-12 SW3 12
P3501-11 P.B.Y 11
P3501-10 REC AMP OUT Ⓒ 10
P3501-9 —— 9
P3501-8 P.B. 5V 8
P3501-7 SW1 7
P3501-6 GND 6
P3501-5 SP D REC Ⓗ 5
P3501-4 R ERASE 9V 4
P3501-3 P.B. CHROMA 3
P3501-2 RE Ⓛ 2
P3501-1 SP P.B. Ⓗ 1
(TO PAGE 3-62)
Q5001 FMS1 (SW1 Ⓗ:ON)
R5001 1500
R5002 1000
R5003 2700
R5004 3300
Q5002 2SD1328 (REC:ON)
R5045 470
C5001 1
C5002 0.047
R5041 10K
C5032 0.022
QR5001 FMG1 (INV.)
Q5003 2SD1328 (P.B:ON)
R5005 3300
R5006 3300
C5036 0.01
QR5004 (INV.) XN1113
(SW2 Ⓗ:ON)
C5003
(REC:ON)
Q5004 2SD1328
R5007 1500
R5008 1000
R5009 2700
R5010 3300
R5011 3300
Q5005 2SD1328
R5012 3300 (P.B:ON)
C5037 0.01
C5004 0.047
R5042 10K
C5033 0.022
(INV.)
R5046 470
R5013 10
(SW3 Ⓗ:ON)
Q5006 FMS1 (Q)
C5005 1
R5014 1500
C5006 0.047
R5015 1000
R5016 2700
R5017 3300
Q5007 2SD1328 (REC:ON)
R5047 470
R5018 3300
C5034 0.022
R5043 10K
QR5002 FM G1JK
Q5008 2SD1328
R5019 3300 (P.B:ON)
C5038 0.01
QR5005 XN1113 (INV.)
(SW4 Ⓗ:ON)
R5020 1500
R5050 10
C5007 1
R5021 1000
R5023 3300
R5048 470
Q5009 2SD1328
C5008 0.047
C5035 0.022
R5022 2700
Q5010 2SD1328 (P.B:ON)
R5024 3300 (REC:ON)
R5044 10K
R5025 3300
C5039 0.01
IC5001 AN3311S
C5014 47P
C5016 1
C5017 1
C5011 0.01
C5012 47P
C5013 0.01
C5015 0.01
C5018 47P
C5019 0.01
C5020 0.01
C5021 47P
C5022 1
R5026 10K
R5027 1800
R5028 1800
R5029 1800
R5030 1800
R5031 10K
Amp
H.SW
AGC
DET
Vcc
GND
R5035 1500
C5009 6V47
L5001 100u
C5010 0.01
R5033 1K
R5032 560
R5034 1K
L5003 47
C5023 1
C5024 47P
Q5011 2SB1218
(PHASE COMPENSATOR)
L5004 10u
C5026 0.01
C5027 0.01
R5037 8200
C5029 120P
R5038 390
R5039 270
R5040 4.7
Q5013 2SA1175FF,EF (AMP)
C5030 150P
39K
L5005 12u
C5031 39P
Q5012 2SA812M6,M7 (OSC)
(TO VIDEO HEAD)
P5002
12 GND
11 R2 (F)
10 R2 (S)
9 L2 (S)
8 L2 (F)
7 GND
6 R1 (F)
5 R1 (S)
4 L1 (S)
3 L1 (F)
2 FE (F)
1 FE (S)
P5003
1 REC CURR (GND)
2 REC CURR (HOT)

Back Page:
LUMINANCE &
CHROMINANCE PACK Section


(TO VIDEO HEAD)
P5002
12 GND
11 R2 (F)
10 R2 (S)
9 L2 (S)
8 L2 (F)
7 GND
6 R1 (F)
5 R1 (S)
4 L1 (S)
3 L1 (F)
2 FE (F)
1 FE (S)
P5003
1 REC CURR(GND)
2 REC CURR(HOT)
6

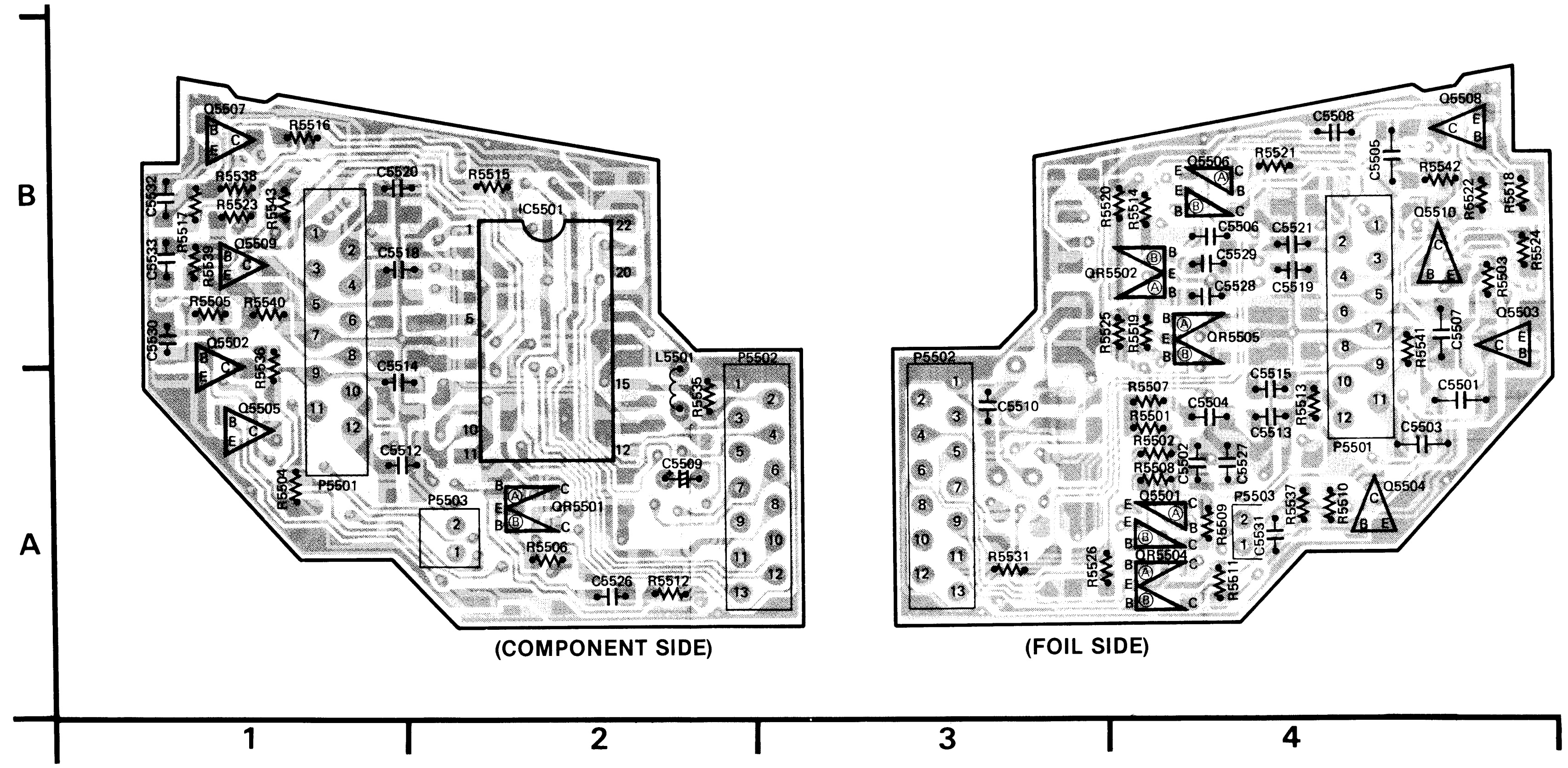
3-32. VIDEO HEAD AMP C.B.A. (VEP05132D)


B
A
1
2
3
4
IC5001
P5001
P5002
P5003
(COMPONENT SIDE)
(FOIL SIDE)

VIDEO HEAD AMP C.B.A.		
Transistor		
Q5001	A-2	Ⓒ
Q5002	B-4	Ⓕ
Q5003	B-4	Ⓕ
Q5004	A-4	Ⓕ
Q5005	B-4	Ⓕ
Q5006	B-4	Ⓕ
Q5007	B-1	Ⓒ
Q5008	B-4	Ⓕ
Q5009	B-4	Ⓕ
Q5010	B-4	Ⓕ
Q5011	B-2	Ⓒ
Q5012	A-4	Ⓕ
Q5013	A-1	Ⓒ
Transistor & Resistor		
QR5001	A-4	Ⓕ
QR5002	A-2	Ⓒ
QR5004	A-4	Ⓕ
QR5005	B-4	Ⓕ
Integrated Circuit		
IC5001	B-2	Ⓒ
Connector		
P5001	B-2	Ⓒ
P5001	B-3	Ⓕ
P5002	B-1	Ⓒ
P5003	A-2	Ⓒ
P5003	A-4	Ⓕ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

3-33. Hi-Fi AUDIO HEAD AMP C.B.A. (VEP05133B)

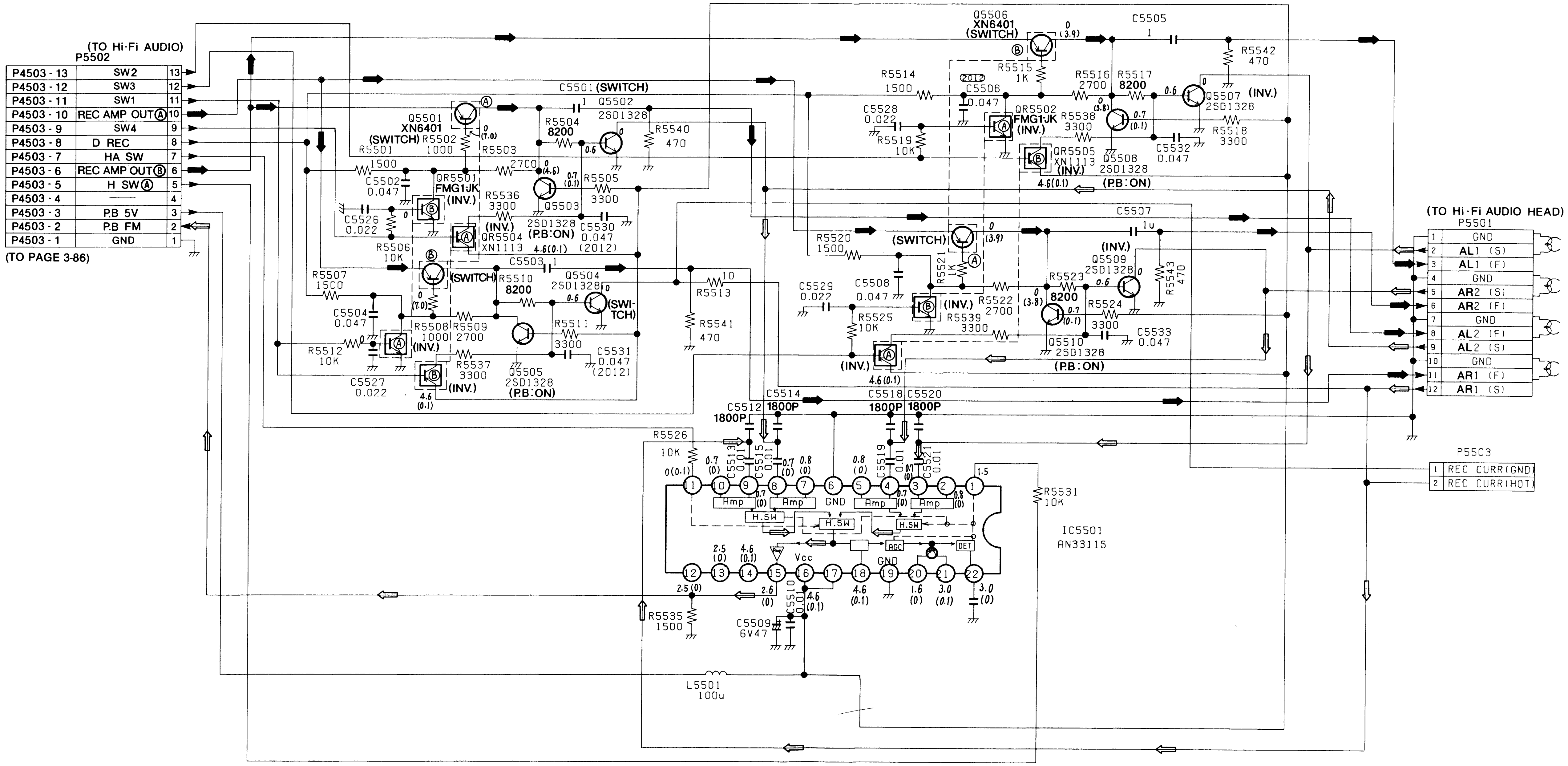

B
A
1
2
3
4
IC5501
P5501
P5502
P5503
(COMPONENT SIDE)
(FOIL SIDE)

Hi-Fi AUDIO HEAD AMP C.B.A.		
Transistor		
Q5501	A-4	Ⓕ
Q5502	B-1	Ⓒ
Q5503	B-4	Ⓕ
Q5504	A-4	Ⓕ
Q5505	A-1	Ⓒ
Q5506	B-4	Ⓕ
Q5507	B-1	Ⓒ
Q5508	B-4	Ⓕ
Q5509	B-1	Ⓒ
Q5510	B-4	Ⓕ
Transistor & Resistor		
QR5501	A-2	Ⓒ
QR5502	B-4	Ⓕ
QR5504	A-4	Ⓕ
QR5505	B-4	Ⓕ
Integrated Circuit		
IC5501	B-2	Ⓒ
Connector		
P5501	A-1	Ⓒ
P5501	A-4	Ⓕ
P5502	B-3	Ⓒ
P5502	B-3	Ⓕ
P5503	A-2	Ⓒ
P5503	A-4	Ⓕ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

3-34. Hi-Fi AUDIO HEAD AMP SCHEMATIC DIAGRAM

⬅ MAIN SIGNAL PATH IN REC MODE.   ⇦ MAIN SIGNAL PATH IN PLAYBACK MODE.



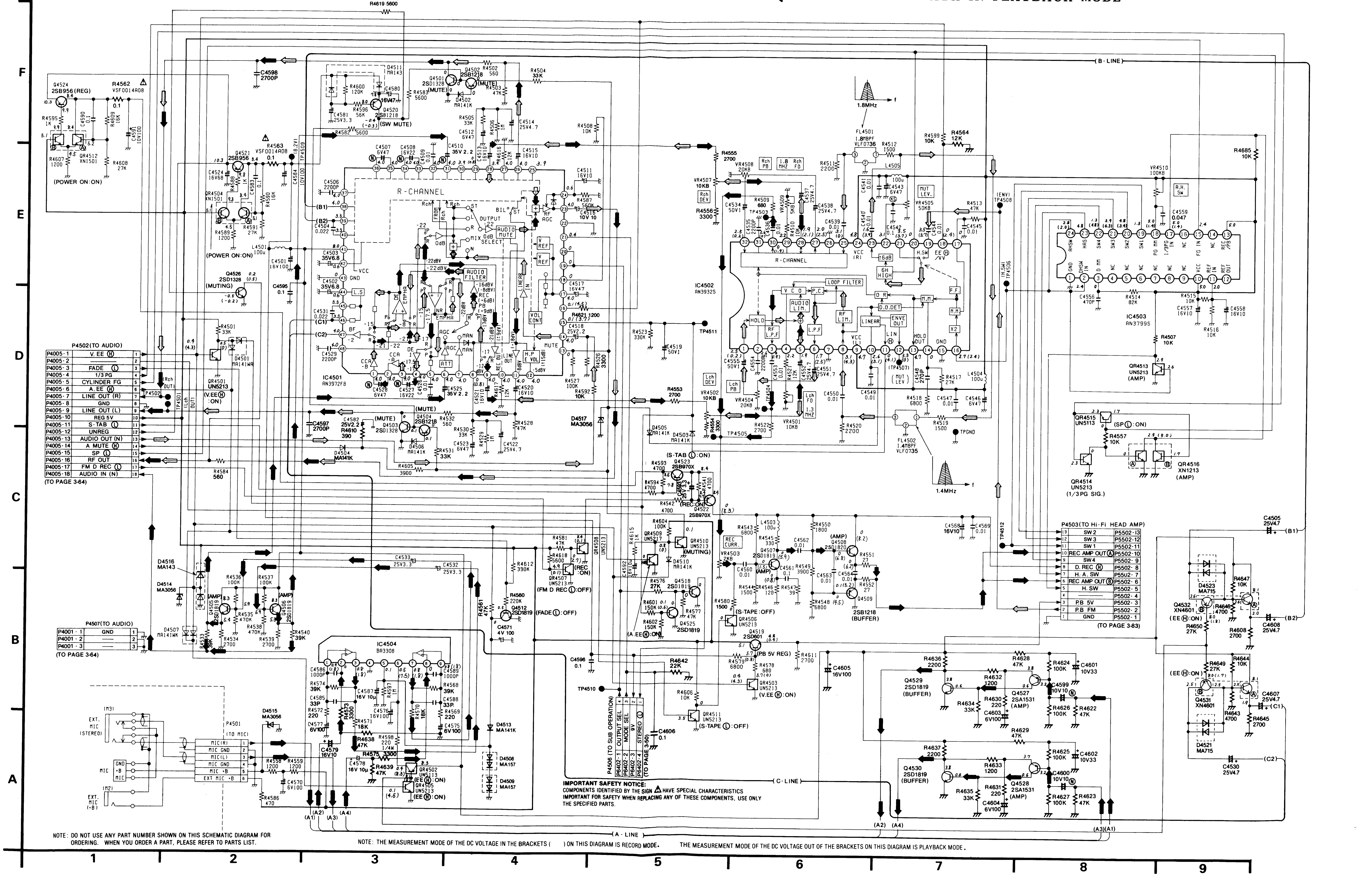
(TO Hi-Fi AUDIO)
P5502
P4503 - 13 SW2 13
P4503 - 12 SW3 12
P4503 - 11 SW1 11
P4503 - 10 REC AMP OUTⒶ 10
P4503 - 9 SW4 9
P4503 - 8 D REC 8
P4503 - 7 HA SW 7
P4503 - 6 REC AMP OUTⒷ 6
P4503 - 5 H SWⒶ 5
P4503 - 4 — 4
P4503 - 3 PB 5V 3
P4503 - 2 PB FM 2
P4503 - 1 GND 1
(TO PAGE 3-86)
Q5501 XN6401 (SWITCH)
Q5502 2SD1328
Q5503
Q5504 2SD1328 (SWITCH)
Q5505 2SD1328 (P.B:ON)
Q5506 XN6401 (SWITCH)
Q5507 2SD1328 (INV.)
Q5508 2SD1328 (P.B:ON)
Q5509 2SD1328 (INV.)
Q5510 2SD1328 (P.B:ON)
QR5501 FMG1JK (INV.)
QR5502 FMG1JK (INV.)
QR5504 XN1113 (P.B:ON)
QR5505 XN1113 (INV.)
C5501 (SWITCH)
C5502 0.047
C5503 1
C5504 0.047
C5505 1
C5506 0.047
C5507 1u
C5508 0.047
C5509 6V47
C5510 0.01
C5512 1800P
C5513 0.01
C5514 1800P
C5515 0.01
C5518 1800P
C5519 0.01
C5520 1800P
C5521 0.01
C5526 0.022
C5527 0.022
C5528 0.022
C5529 0.022
C5530 0.047 (2012)
C5531 0.047 (2012)
C5532 0.047
C5533 0.047
R5501 1000
R5502 1000
R5503 2700
R5504 8200
R5505 3300
R5506 10K
R5507 1500
R5508 1000
R5509 2700
R5510 8200
R5511 3300
R5512 10K
R5513 10
R5514 1500
R5515 1K
R5516 2700
R5517 8200
R5518 3300
R5519 10K
R5520 1500
R5521 1K
R5522 2700
R5523 8200
R5524 3300
R5525 10K
R5526 10K
R5531 10K
R5535 1500
R5536 3300
R5537 3300
R5538 3300
R5539 3300
R5540 470
R5541 470
R5542 470
R5543 470
L5501 100u
IC5501 AN3311S
Amp
H.SW
GND
Vcc
AGC
DET
(TO Hi-Fi AUDIO HEAD)
P5501
1 GND
2 AL1 (S)
3 AL1 (F)
4 GND
5 AR2 (S)
6 AR2 (F)
7 GND
8 AL2 (F)
9 AL2 (S)
10 GND
11 AR1 (F)
12 AR1 (S)
P5503
1 REC CURR(GND)
2 REC CURR(HOT)
C
B
A
1
2
3
4
5
6

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

3-35. Hi-Fi AUDIO SCHEMATIC DIAGRAM

◀ MAIN SIGNAL PATH IN REC MODE ◁ MAIN SIGNAL PATH IN PLAYBACK MODE



R-CHANNEL
IC4501 AN3972FB
IC4502 AN3932S
IC4503 AN3799S
IC4504 BA3308
P4502 (TO AUDIO)
P4005-1 V.EE Ⓗ
P4005-2 —
P4005-3 FADE Ⓛ
P4005-4 1/3 PG
P4005-5 CYLINDER FG
P4005-6 A.EE Ⓗ
P4005-7 LINE OUT (R)
P4005-8 GND
P4005-9 LINE OUT (L)
P4005-10 REG 5V
P4005-11 S-TAB Ⓛ
P4005-12 UNREG
P4005-13 AUDIO OUT (N)
P4005-14 A MUTE Ⓗ
P4005-15 SP Ⓛ
P4005-16 RF OUT
P4005-17 FM D REC Ⓛ
P4005-18 AUDIO IN (N)
(TO PAGE 3-64)
P4507 (TO AUDIO)
P4001-1 GND
P4001-2 —
P4001-3 —
(TO PAGE 3-64)
P4501 (TO MIC)
MIC(R)
MIC GND
MIC(L)
MIC GND
MIC +B
EXT MIC +B
EXT. MIC (STEREO)
MIC
EXT. MIC (+B)
P4503 (TO Hi-Fi HEAD AMP)
13 SW 2 P5502-13
12 SW 3 P5502-12
11 SW 1 P5502-11
10 REC AMP OUT Ⓐ P5502-10
9 SW 4 P5502-9
8 D. REC Ⓗ P5502-8
7 H. A. SW P5502-7
6 REC AMP OUT Ⓑ P5502-6
5 H. SW P5502-5
4 — P5502-4
3 PB 5V P5502-3
2 PB FM P5502-2
1 GND P5502-1
(TO PAGE 3-63)
P4506 (TO SUB OPERATION)
P6402-1 OUTPUT SEL
P6402-2 MODE SEL
P6402-3 9V
P6402-4 STEREO Ⓛ
(TO PAGE 3-50)
(B-LINE)
(C-LINE)
(A-LINE)
1.8MHz
1.4MHz
FL4501 1.8MBPF VLF0736
FL4502 1.4MBPF VLF0735
(POWER ON:ON)
(MUTING)
(SW MUTE)
(MUTE)
(FADE Ⓛ:OFF)
(FM D REC Ⓛ:OFF)
(S-TAB Ⓛ:ON)
(REC:ON)
(S-TAPE:OFF)
(S-TAPE Ⓛ:OFF)
(PB 5V REG)
(V.EE Ⓗ:ON)
(A.EE Ⓗ:ON)
(EE Ⓗ:ON)
(SP Ⓛ:ON)
(BUFFER)
(AMP)
A B C D E F
1 2 3 4 5 6 7 8 9

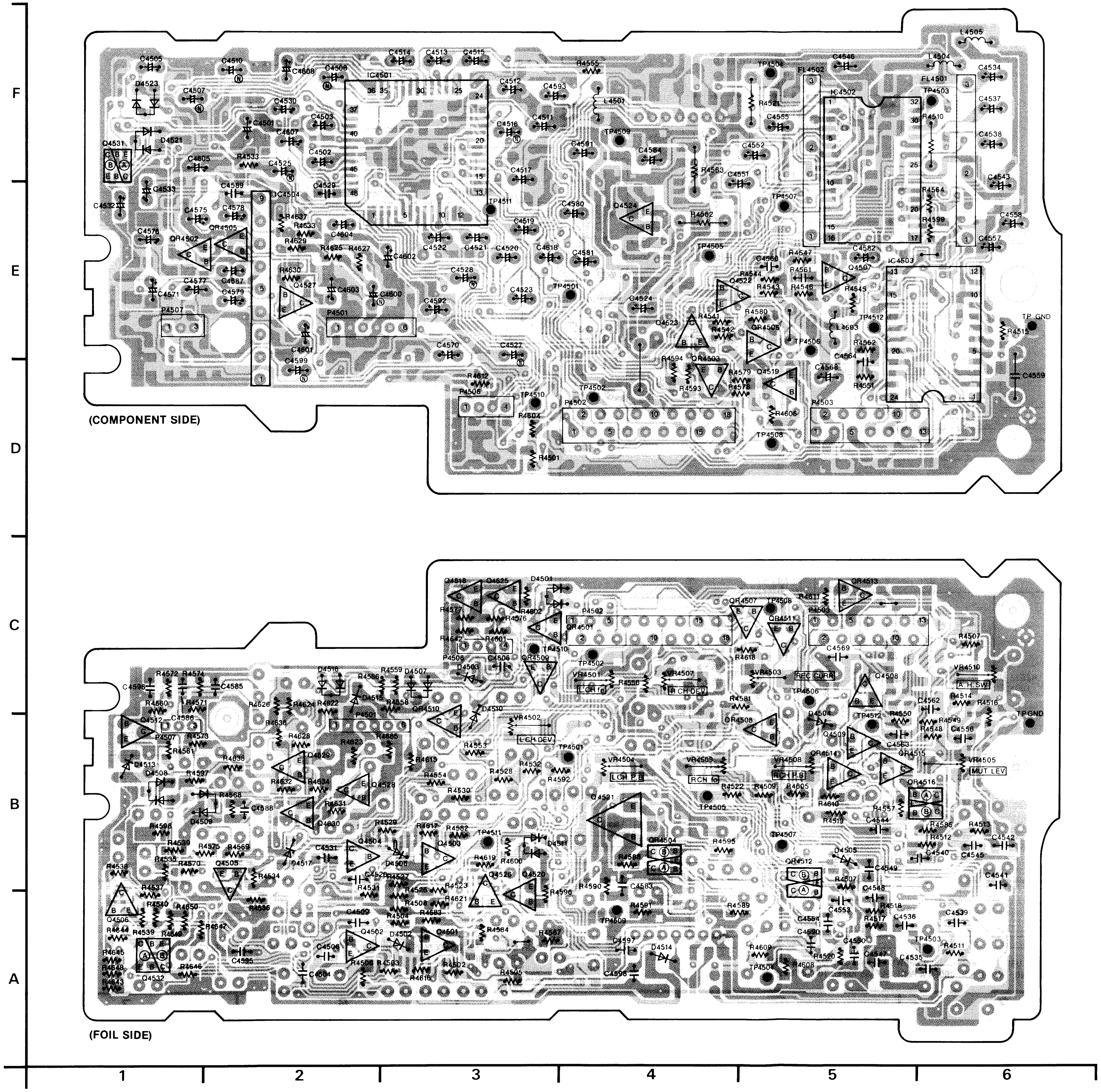
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE. THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE.

Back Page:
Hi-Fi AUDIO HEAD AMP Section

3-36. Hi-Fi AUDIO C.B.A. (VEP04276A)


F
E
D
C
B
A
1
2
3
4
5
6
(COMPONENT SIDE)
(FOIL SIDE)
IC4501
IC4502
IC4503
IC4504
FL4501
FL4502
L4501
L4503
L4504
L4505
D4521
D4523
Q4531
QR4502
QR4503
QR4505
QR4506
Q4507
Q4519
Q4522
Q4523
Q4524
Q4527
P4501
P4502
P4503
P4506
P4507
TP4501
TP4502
TP4503
TP4504
TP4505
TP4506
TP4507
TP4508
TP4509
TP4510
TP4511
TP4512
TP GND
VR4501
VR4502
VR4503
VR4504
VR4505
VR4507
VR4508
VR4509
VR4510
L CH fo
R CH fo
L CH DEV
R CH DEV
L CH P.B
R CH P.B
REC CURR
A.H.SW
MUT LEV
Q4501
Q4502
Q4503
Q4504
Q4505
Q4506
Q4508
Q4509
Q4512
Q4518
Q4520
Q4521
Q4525
Q4526
Q4528
Q4529
Q4530
Q4532
QR4504
QR4507
QR4508
QR4509
QR4510
QR4511
QR4512
QR4513
QR4514
QR4515
QR4516
D4501
D4502
D4503
D4504
D4505
D4507
D4508
D4509
D4510
D4511
D4513
D4514
D4516
D4517

Transistor		
Q4501	A-3	Ⓕ
Q4502	A-2	Ⓕ
Q4503	B-3	Ⓕ
Q4504	B-2	Ⓕ
Q4505	B-2	Ⓕ
Q4506	A-1	Ⓕ
Q4507	E-5	Ⓒ
Q4508	C-5	Ⓕ
Q4509	B-5	Ⓕ
Q4512	B-1	Ⓕ
Q4518	C-3	Ⓕ
Q4519	D-5	Ⓒ
Q4520	B-3	Ⓕ
Q4521	B-4	Ⓕ
Q4522	E-5	Ⓒ
Q4523	E-4	Ⓒ
Q4524	E-4	Ⓒ
Q4525	C-3	Ⓕ
Q4526	B-3	Ⓕ
Q4527	E-2	Ⓒ
Q4528	B-3	Ⓕ
Q4529	B-2	Ⓕ
Q4530	B-2	Ⓕ
Q4531	F-1	Ⓒ
Q4532	A-1	Ⓕ

Transistor & Resistor		
QR4502	E-1	Ⓒ
QR4503	D-4	Ⓒ
QR4504	B-4	Ⓕ
QR4505	E-2	Ⓒ
QR4506	E-5	Ⓒ
QR4507	C-5	Ⓕ
QR4508	B-5	Ⓕ
QR4509	C-3	Ⓕ
QR4510	C-3	Ⓕ
QR4511	C-5	Ⓕ
QR4512	B-5	Ⓕ
QR4513	C-5	Ⓕ
QR4514	B-5	Ⓕ
QR4515	B-5	Ⓕ
QR4516	B-6	Ⓕ

Integrated Circuit		
IC4501	F-2	Ⓒ
IC4502	F-5	Ⓒ
IC4503	F-5	Ⓒ
IC4504	E-2	Ⓒ

Test Point		
TP4501	E-4	Ⓒ
TP4501	B-4	Ⓕ
TP4502	D-4	Ⓒ
TP4502	C-4	Ⓕ
TP4503	F-6	Ⓒ
TP4503	A-6	Ⓕ
TP4504	F-5	Ⓒ
TP4504	A-5	Ⓕ
TP4505	E-4	Ⓒ
TP4505	B-4	Ⓕ
TP4506	E-5	Ⓒ
TP4506	C-5	Ⓕ
TP4507	E-5	Ⓒ
TP4507	B-5	Ⓕ
TP4508	D-5	Ⓒ
TP4508	C-5	Ⓕ
TP4509	F-4	Ⓒ
TP4509	A-4	Ⓕ
TP4510	D-3	Ⓒ
TP4510	C-3	Ⓕ
TP4511	E-3	Ⓒ
TP4511	B-3	Ⓕ
TP4512	E-5	Ⓒ
TP4512	B-5	Ⓕ

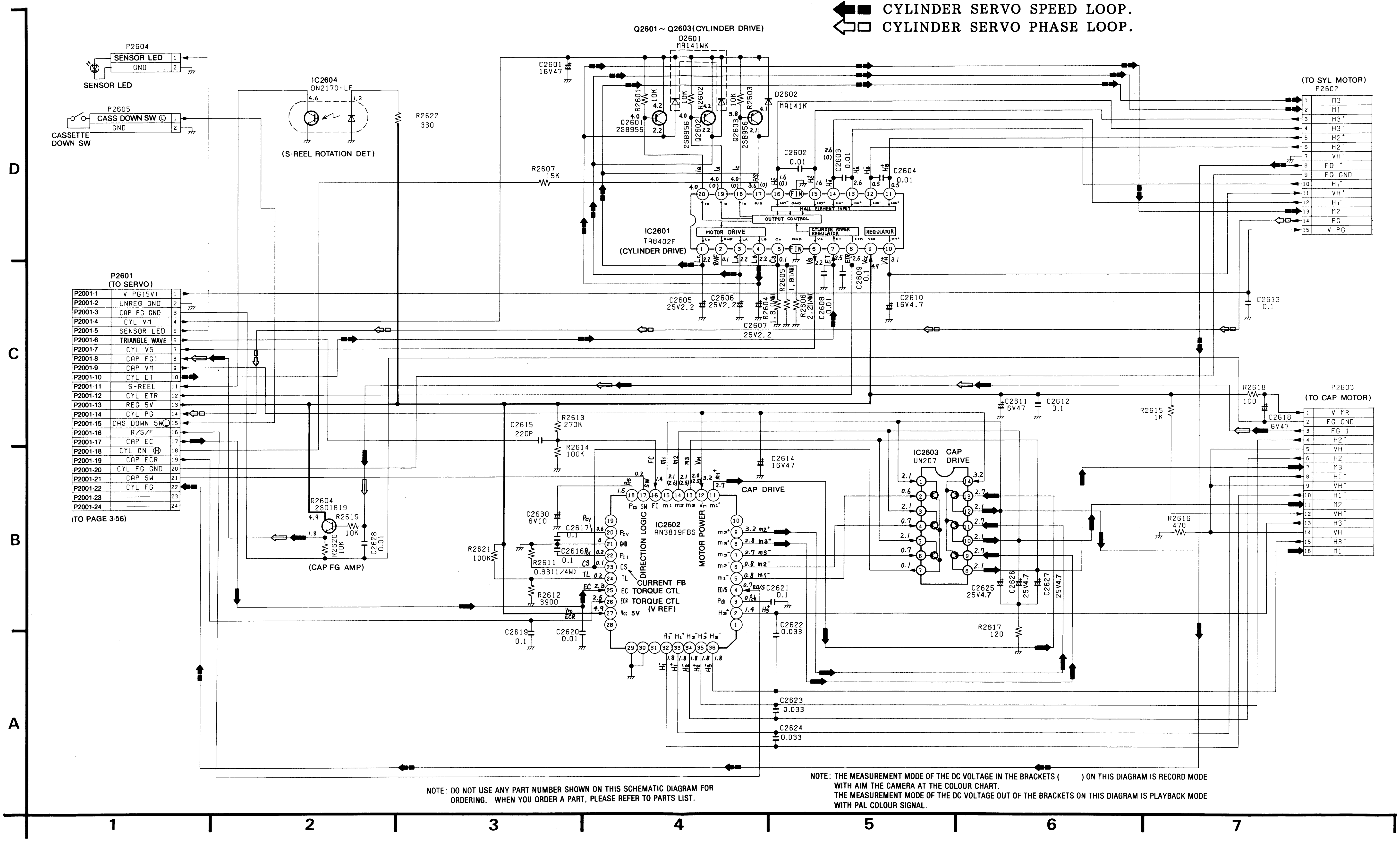
Adjustment		
VR4501	C-4	Ⓕ
VR4502	B-3	Ⓕ
VR4503	C-5	Ⓕ
VR4504	B-4	Ⓕ
VR4505	B-6	Ⓕ
VR4507	C-4	Ⓕ
VR4508	B-5	Ⓕ
VR4509	B-4	Ⓕ
VR4510	C-6	Ⓕ

Connector		
P4501	E-2	Ⓒ
P4501	B-2	Ⓕ
P4502	D-4	Ⓒ
P4502	C-4	Ⓕ
P4503	D-5	Ⓒ
P4503	C-5	Ⓕ
P4506	D-3	Ⓒ
P4506	C-3	Ⓕ
P4507	E-1	Ⓒ
P4507	B-1	Ⓕ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

3-37. MOTOR DRIVE SCHEMATIC DIAGRAM

- ⬅ CAPSTAN SERVO SPEED LOOP.
- ⇦ CAPSTAN SERVO PHASE LOOP.
- ⬅■ CYLINDER SERVO SPEED LOOP.
- ⇦□ CYLINDER SERVO PHASE LOOP.



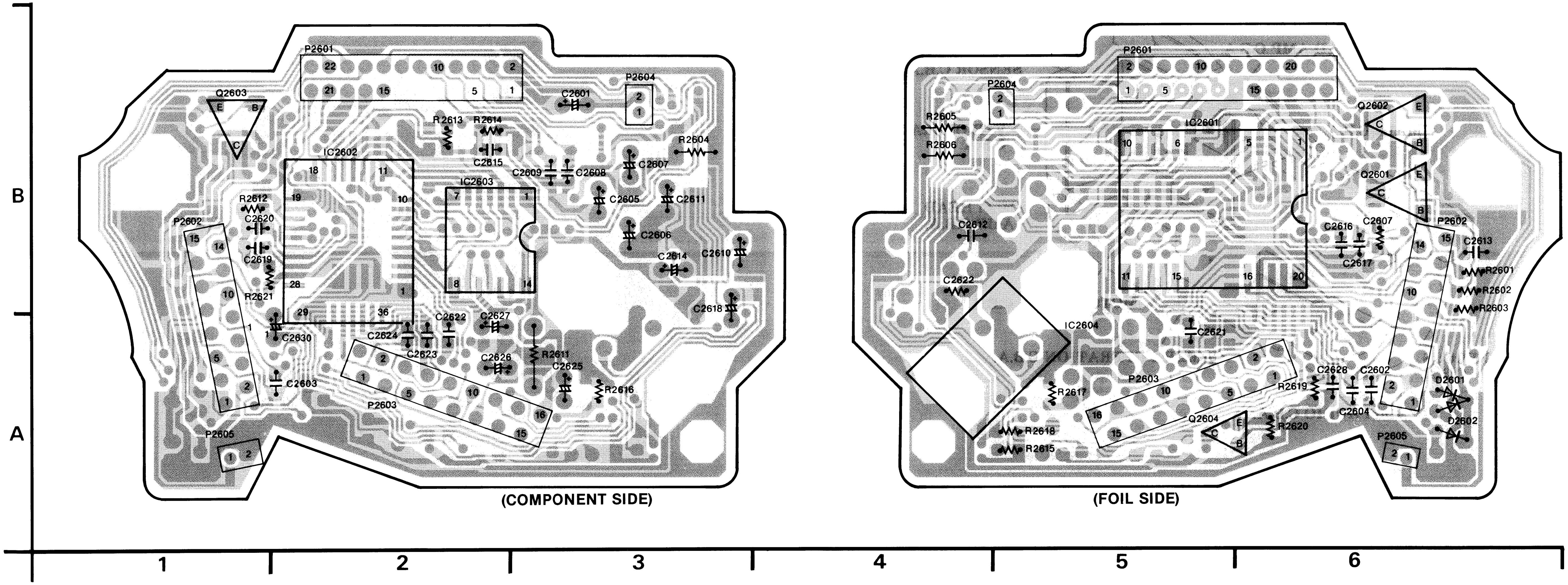
P2604
SENSOR LED
GND
SENSOR LED
P2605
CASS DOWN SW Ⓛ
GND
CASSETTE DOWN SW
IC2604
DN2170-LF
(S-REEL ROTATION DET)
R2622 330
R2607 15K
Q2601 ~ Q2603(CYLINDER DRIVE)
D2601 MA141WK
C2601 16V47
R2601 10K
R2602 10K
R2603 10K
Q2601 2SB956
Q2602 2SB956
Q2603 2SB956
D2602 MA141K
C2602 0.01
C2603 0.01
C2604 0.01
IC2601 TA8402F (CYLINDER DRIVE)
HALL ELEMENT INPUT
OUTPUT CONTROL
MOTOR DRIVE
CYLINDER POWER REGULATOR
REGULATOR
C2605 25V2.2
C2606 25V2.2
R2604 1.8(1/4W)
R2605 1.8(1/4W)
R2606 2.2(1/4W)
C2607 25V2.2
C2608 0.01
C2609 0.1
C2610 16V4.7
C2613 0.1
(TO SYL MOTOR) P2602
1 M3
2 M1
3 H3⁺
4 H3⁻
5 H2⁺
6 H2⁻
7 VH⁻
8 FG⁺
9 FG GND
10 H1⁺
11 VH⁺
12 H1⁻
13 M2
14 PG
15 V PG
P2601 (TO SERVO)
P2001-1 V PG(5V) 1
P2001-2 UNREG GND 2
P2001-3 CAP FG GND 3
P2001-4 CYL VM 4
P2001-5 SENSOR LED 5
P2001-6 TRIANGLE WAVE 6
P2001-7 CYL VS 7
P2001-8 CAP FG1 8
P2001-9 CAP VM 9
P2001-10 CYL ET 10
P2001-11 S-REEL 11
P2001-12 CYL ETR 12
P2001-13 REG 5V 13
P2001-14 CYL PG 14
P2001-15 CAS DOWN SWⓁ 15
P2001-16 R/S/F 16
P2001-17 CAP EC 17
P2001-18 CYL ON Ⓗ 18
P2001-19 CAP ECR 19
P2001-20 CYL FG GND 20
P2001-21 CAP SW 21
P2001-22 CYL FG 22
P2001-23 ——— 23
P2001-24 ——— 24
(TO PAGE 3-56)
Q2604 2SD1819
R2619 10K
R2620 10K
C2628 0.01
(CAP FG AMP)
C2615 220P
R2613 270K
R2614 100K
C2630 6V10
C2617 0.1
C2616 0.1
R2611 0.33(1/4W)
R2612 3900
R2621 100K
C2619 0.1
C2620 0.01
C2614 16V47
IC2602 AN3819FBS
CAP DRIVE
DIRECTION LOGIC
MOTOR POWER
CURRENT FB
TORQUE CTL
TORQUE CTL (V REF)
Vcc 5V
C2621 0.1
C2622 0.033
C2623 0.033
C2624 0.033
IC2603 CAP DRIVE UN207
C2625 25V4.7
C2626 25V4.7
C2627 25V4.7
C2611 6V47
C2612 0.1
R2615 1K
R2616 470
R2617 120
R2618 100
C2618 6V47
P2603 (TO CAP MOTOR)
1 V MR
2 FG GND
3 FG 1
4 H2⁺
5 VH⁻
6 H2⁻
7 M3
8 H1⁺
9 VH⁻
10 H1⁻
11 M2
12 VH⁺
13 H3⁺
14 VH⁻
15 H3⁻
16 M1
A
B
C
D
1
2
3
4
5
6
7

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

Back Page:
Hi-Fi AUDIO Section

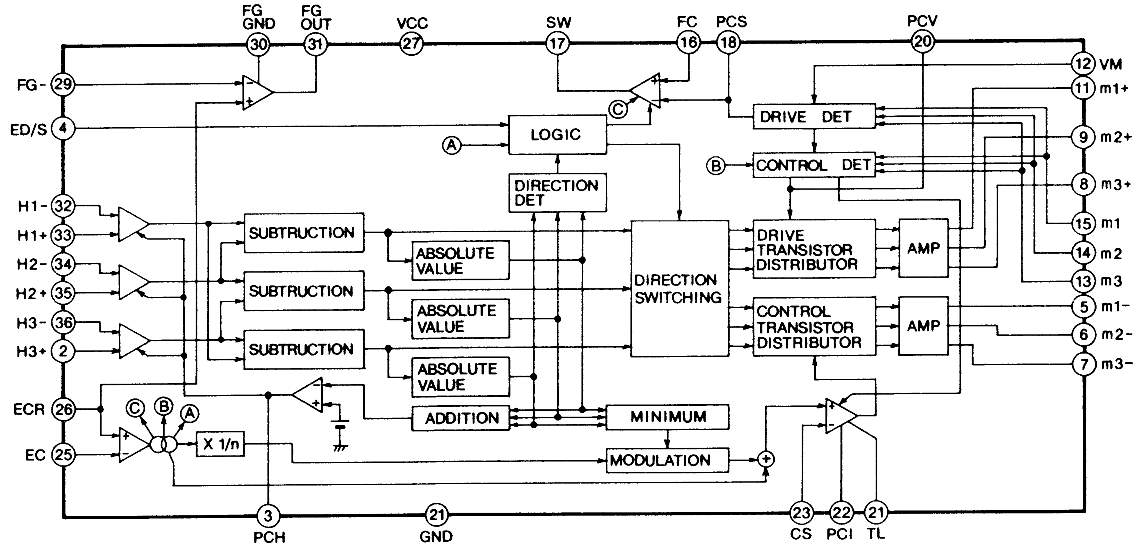
3-38. MOTOR DRIVE C.B.A. (VEP02318A)


B
A
1
2
3
4
5
6
P2601
Q2603
E
B
C
IC2602
IC2603
P2602
P2603
P2604
P2605
R2612
R2613
R2614
R2621
R2604
R2611
R2616
C2601
C2603
C2605
C2606
C2607
C2608
C2609
C2610
C2611
C2614
C2615
C2618
C2619
C2620
C2622
C2623
C2624
C2625
C2626
C2627
C2630
IC2601
IC2604
Q2601
Q2602
Q2604
R2601
R2602
R2603
R2605
R2606
R2615
R2617
R2618
R2619
R2620
C2602
C2604
C2612
C2613
C2616
C2617
C2621
C2628
D2601
D2602

(COMPONENT SIDE)

(FOIL SIDE)

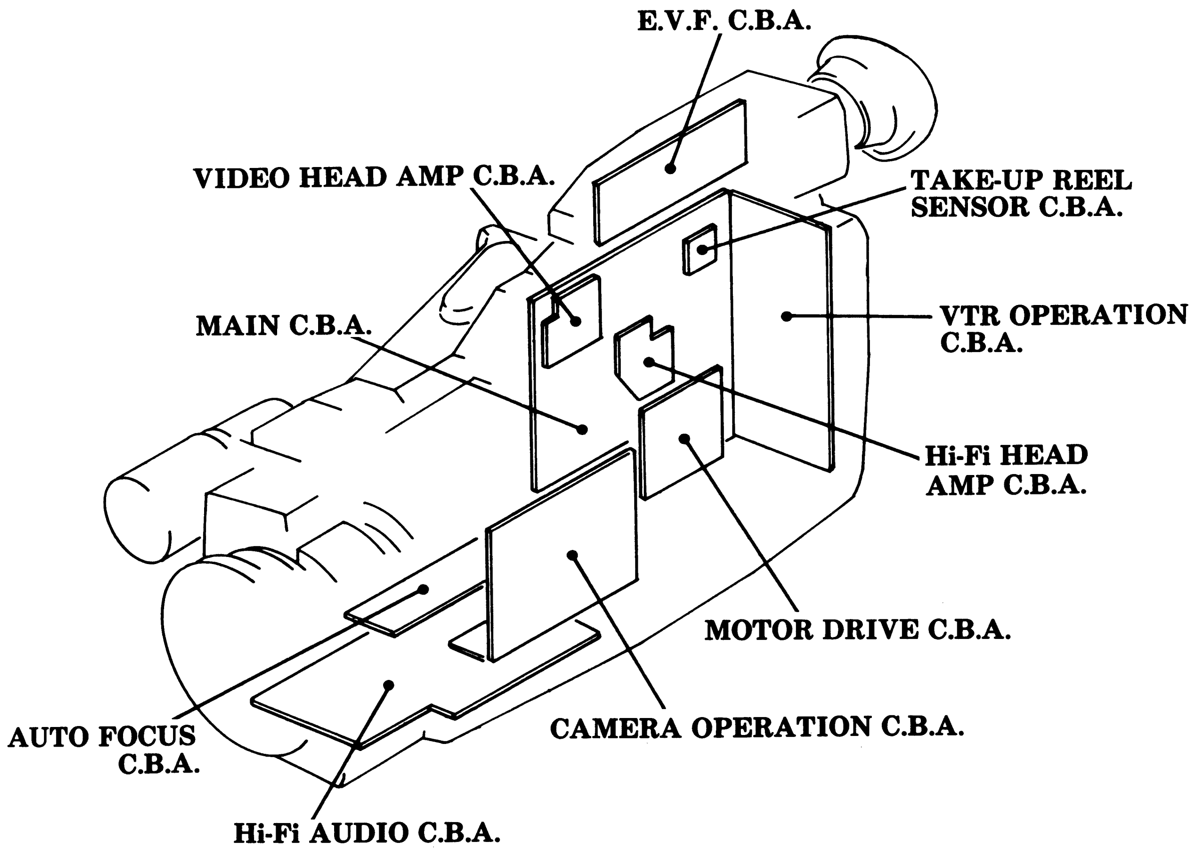
IC2602
(AN3819FBS)

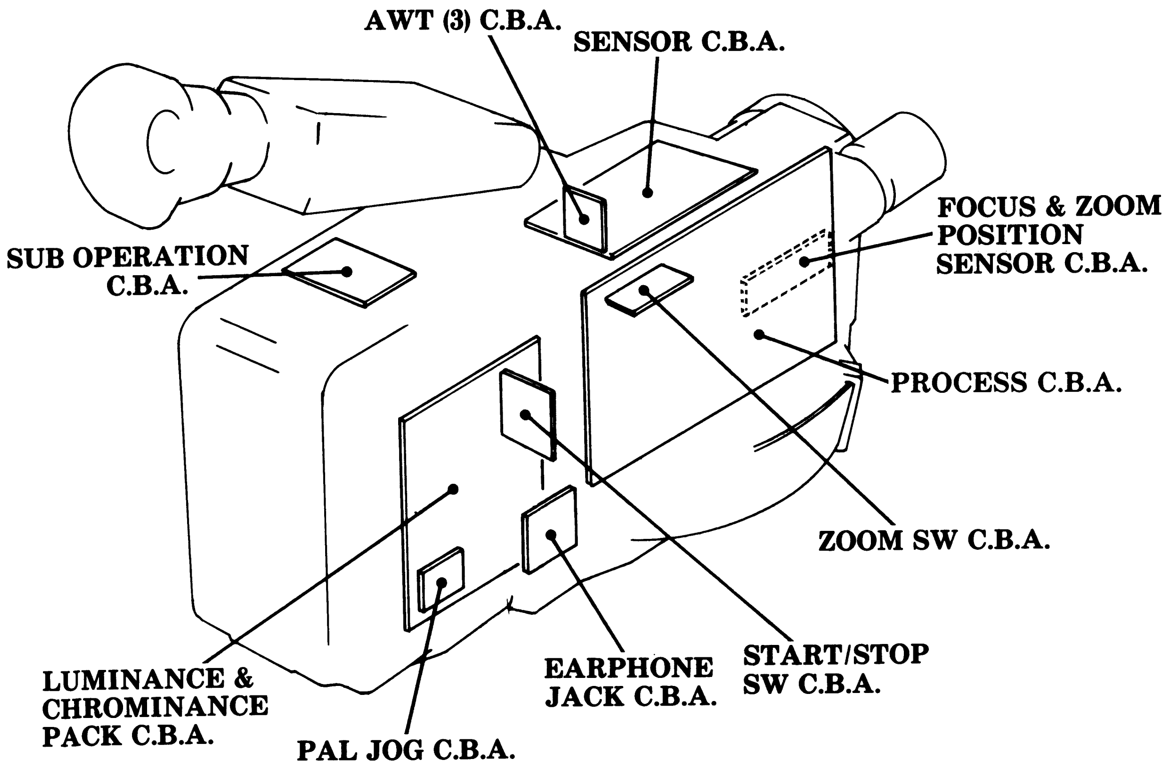

FG GND 30
FG OUT 31
VCC 27
SW 17
FC 16
PCS 18
PCV 20
FG- 29
ED/S 4
H1- 32
H1+ 33
H2- 34
H2+ 35
H3- 36
H3+ 2
ECR 26
EC 25
12 VM
11 m1+
9 m2+
8 m3+
15 m1
14 m2
13 m3
5 m1-
6 m2-
7 m3-
3 PCH
21 GND
23 CS
22 PCI
21 TL
LOGIC
DIRECTION DET
DRIVE DET
CONTROL DET
SUBTRUCTION
SUBTRUCTION
SUBTRUCTION
ABSOLUTE VALUE
ABSOLUTE VALUE
ABSOLUTE VALUE
DIRECTION SWITCHING
DRIVE TRANSISTOR DISTRIBUTOR
CONTROL TRANSISTOR DISTRIBUTOR
AMP
AMP
ADDITION
MINIMUM
MODULATION
X 1/n
Ⓐ
Ⓑ
Ⓒ

MOTOR DRIVE C.B.A.			
Transistor		**Connector**	
Q2601	B-6 Ⓕ	P2601	B-2 Ⓒ
Q2602	B-6 Ⓕ	P2601	B-5 Ⓕ
Q2603	B-1 Ⓒ	P2602	B-1 Ⓒ
Q2604	A-5 Ⓕ	P2602	B-6 Ⓕ
Integrated Circuit		P2603	A-2 Ⓒ
		P2603	A-5 Ⓕ
IC2601	B-5 Ⓕ	P2604	B-3 Ⓒ
IC2602	B-2 Ⓒ	P2604	B-5 Ⓕ
IC2603	B-2 Ⓒ	P2605	A-1 Ⓒ
IC2604	A-5 Ⓕ	P2605	A-6 Ⓕ

ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

3-39. CIRCUIT BOARD LAYOUT

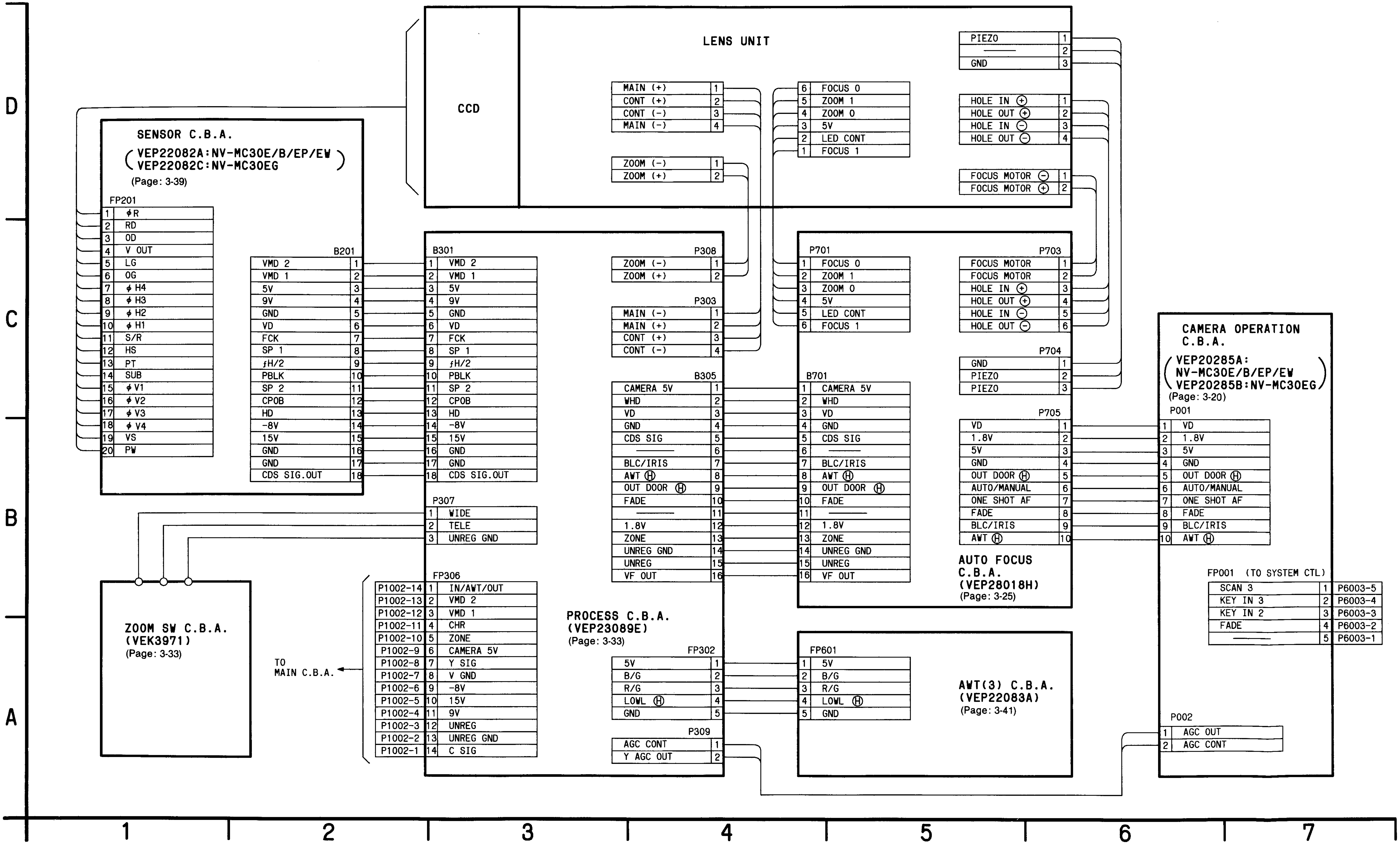

E.V.F. C.B.A.
VIDEO HEAD AMP C.B.A.
TAKE-UP REEL SENSOR C.B.A.
MAIN C.B.A.
VTR OPERATION C.B.A.
Hi-Fi HEAD AMP C.B.A.
MOTOR DRIVE C.B.A.
CAMERA OPERATION C.B.A.
AUTO FOCUS C.B.A.
Hi-Fi AUDIO C.B.A.

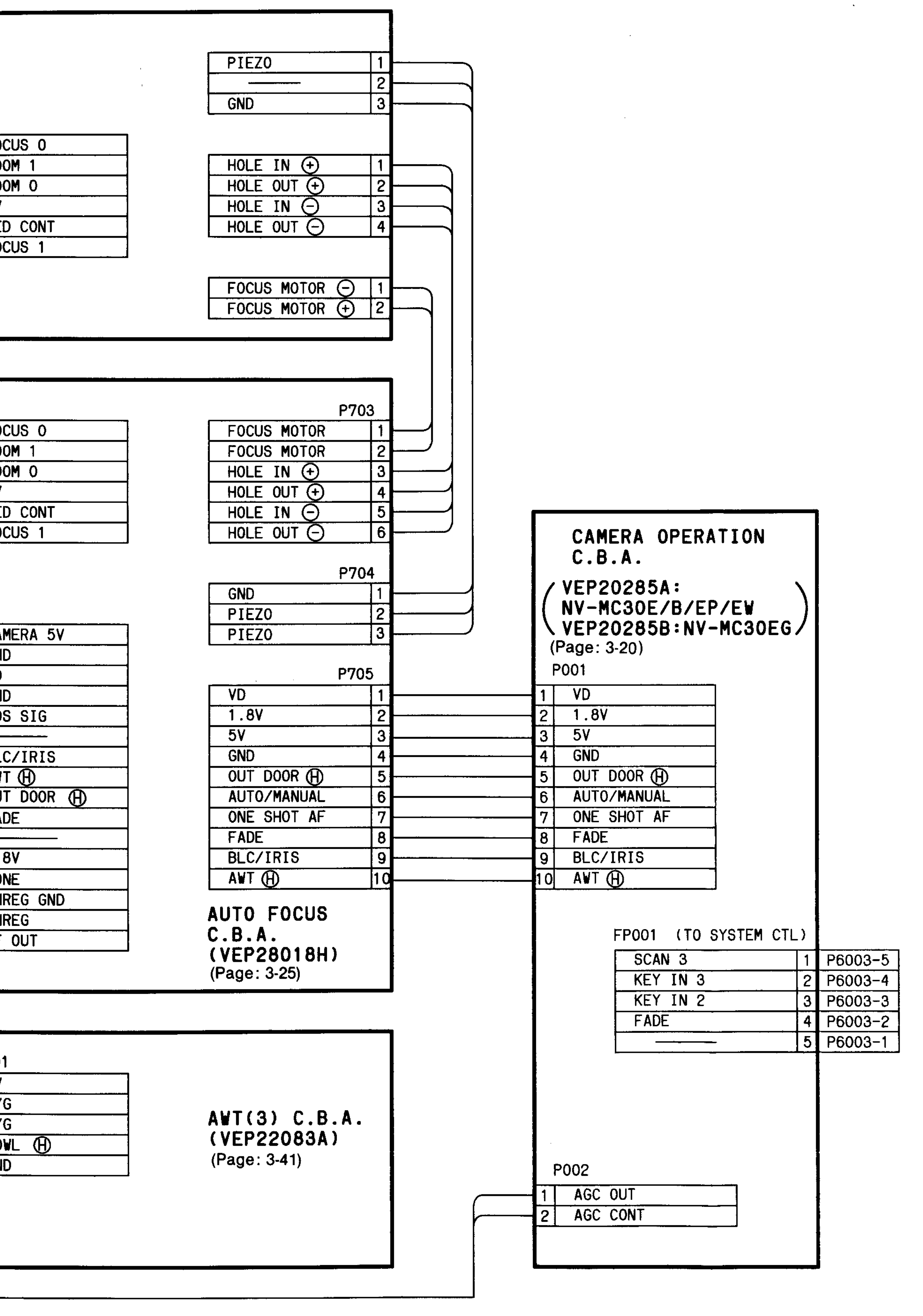

AWT (3) C.B.A.
SENSOR C.B.A.
FOCUS & ZOOM POSITION SENSOR C.B.A.
SUB OPERATION C.B.A.
PROCESS C.B.A.
ZOOM SW C.B.A.
LUMINANCE & CHROMINANCE PACK C.B.A.
EARPHONE JACK C.B.A.
START/STOP SW C.B.A.
PAL JOG C.B.A.

Back Page:
MOTOR DRIVE Section

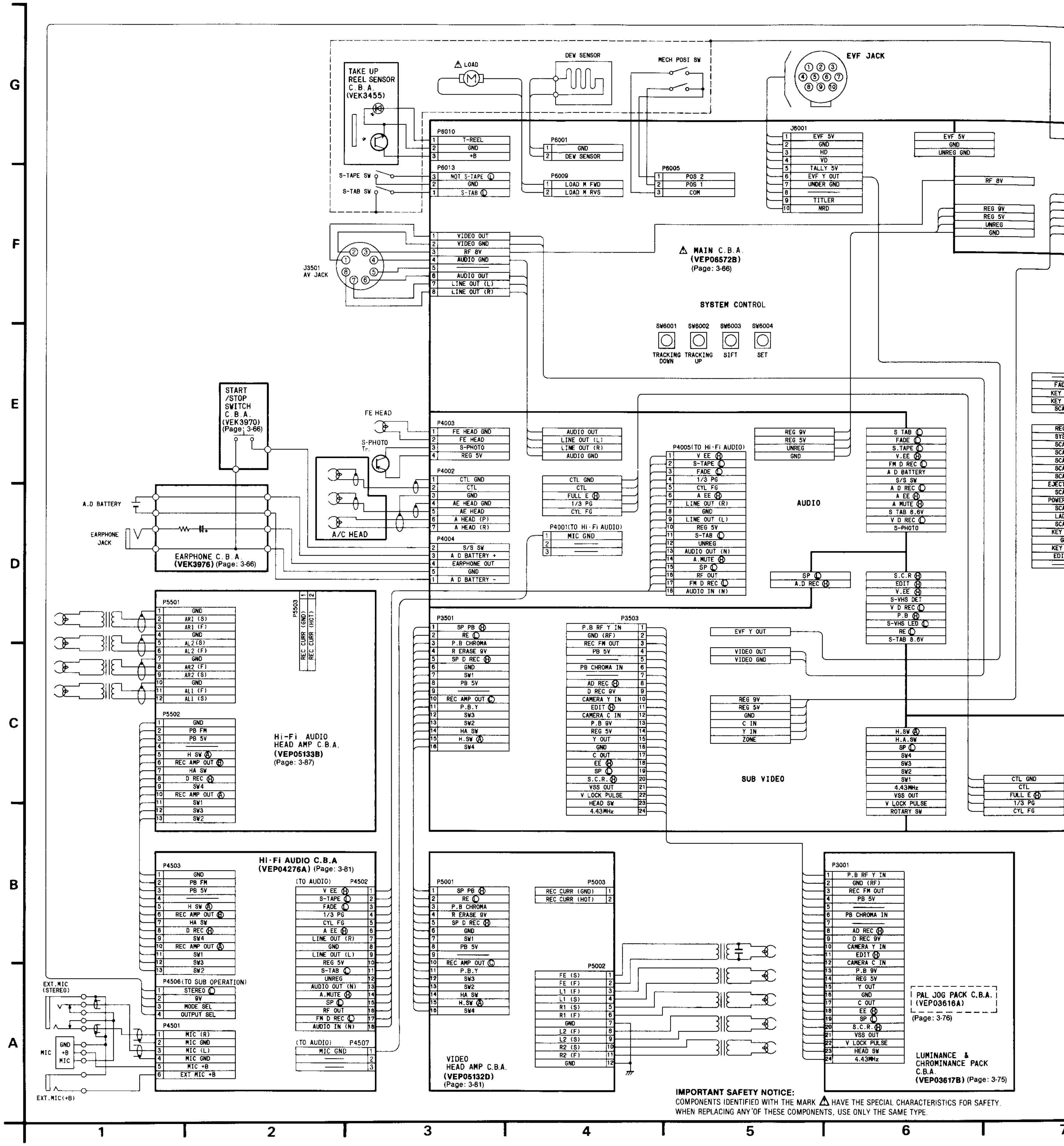
Memo

3-40. CAMERA INTERCONNECTION SCHEMATIC DIAGRAM


LENS UNIT
CCD
MAIN (+) 1
CONT (+) 2
CONT (−) 3
MAIN (−) 4
ZOOM (−) 1
ZOOM (+) 2
6 FOCUS 0
5 ZOOM 1
4 ZOOM 0
3 5V
2 LED CONT
1 FOCUS 1
PIEZO 1
——— 2
GND 3
HOLE IN ⊕ 1
HOLE OUT ⊕ 2
HOLE IN ⊖ 3
HOLE OUT ⊖ 4
FOCUS MOTOR ⊖ 1
FOCUS MOTOR ⊕ 2
SENSOR C.B.A.
(VEP22082A:NV-MC30E/B/EP/EW
VEP22082C:NV-MC30EG)
(Page: 3-39)
FP201
1 ϕR
2 RD
3 OD
4 V OUT
5 LG
6 OG
7 ϕ H4
8 ϕ H3
9 ϕ H2
10 ϕ H1
11 S/R
12 HS
13 PT
14 SUB
15 ϕ V1
16 ϕ V2
17 ϕ V3
18 ϕ V4
19 VS
20 PW
B201
VMD 2 1
VMD 1 2
5V 3
9V 4
GND 5
VD 6
FCK 7
SP 1 8
ƒH/2 9
PBLK 10
SP 2 11
CPOB 12
HD 13
-8V 14
15V 15
GND 16
GND 17
CDS SIG.OUT 18
B301
1 VMD 2
2 VMD 1
3 5V
4 9V
5 GND
6 VD
7 FCK
8 SP 1
9 ƒH/2
10 PBLK
11 SP 2
12 CPOB
13 HD
14 -8V
15 15V
16 GND
17 GND
18 CDS SIG.OUT
P308
ZOOM (−) 1
ZOOM (+) 2
P303
MAIN (−) 1
MAIN (+) 2
CONT (+) 3
CONT (−) 4
B305
CAMERA 5V 1
WHD 2
VD 3
GND 4
CDS SIG 5
——— 6
BLC/IRIS 7
AWT Ⓗ 8
OUT DOOR Ⓗ 9
FADE 10
——— 11
1.8V 12
ZONE 13
UNREG GND 14
UNREG 15
VF OUT 16
P307
1 WIDE
2 TELE
3 UNREG GND
FP306
P1002-14 1 IN/AWT/OUT
P1002-13 2 VMD 2
P1002-12 3 VMD 1
P1002-11 4 CHR
P1002-10 5 ZONE
P1002-9 6 CAMERA 5V
P1002-8 7 Y SIG
P1002-7 8 V GND
P1002-6 9 -8V
P1002-5 10 15V
P1002-4 11 9V
P1002-3 12 UNREG
P1002-2 13 UNREG GND
P1002-1 14 C SIG
TO MAIN C.B.A.
PROCESS C.B.A.
(VEP23089E)
(Page: 3-33)
FP302
5V 1
B/G 2
R/G 3
LOWL Ⓗ 4
GND 5
P309
AGC CONT 1
Y AGC OUT 2
ZOOM SW C.B.A.
(VEK3971)
(Page: 3-33)
P701
1 FOCUS 0
2 ZOOM 1
3 ZOOM 0
4 5V
5 LED CONT
6 FOCUS 1
P703
FOCUS MOTOR 1
FOCUS MOTOR 2
HOLE IN ⊕ 3
HOLE OUT ⊕ 4
HOLE IN ⊖ 5
HOLE OUT ⊖ 6
P704
GND 1
PIEZO 2
PIEZO 3
B701
1 CAMERA 5V
2 WHD
3 VD
4 GND
5 CDS SIG
6 ———
7 BLC/IRIS
8 AWT Ⓗ
9 OUT DOOR Ⓗ
10 FADE
11 ———
12 1.8V
13 ZONE
14 UNREG GND
15 UNREG
16 VF OUT
P705
VD 1
1.8V 2
5V 3
GND 4
OUT DOOR Ⓗ 5
AUTO/MANUAL 6
ONE SHOT AF 7
FADE 8
BLC/IRIS 9
AWT Ⓗ 10
AUTO FOCUS
C.B.A.
(VEP28018H)
(Page: 3-25)
FP601
1 5V
2 B/G
3 R/G
4 LOWL Ⓗ
5 GND
AWT(3) C.B.A.
(VEP22083A)
(Page: 3-41)
CAMERA OPERATION
C.B.A.
(VEP20285A:
NV-MC30E/B/EP/EW
VEP20285B:NV-MC30EG)
(Page: 3-20)
P001
1 VD
2 1.8V
3 5V
4 GND
5 OUT DOOR Ⓗ
6 AUTO/MANUAL
7 ONE SHOT AF
8 FADE
9 BLC/IRIS
10 AWT Ⓗ
FP001 (TO SYSTEM CTL)
SCAN 3 1 P6003-5
KEY IN 3 2 P6003-4
KEY IN 2 3 P6003-3
FADE 4 P6003-2
——— 5 P6003-1
P002
1 AGC OUT
2 AGC CONT
D
C
B
A
1
2
3
4
5
6
7

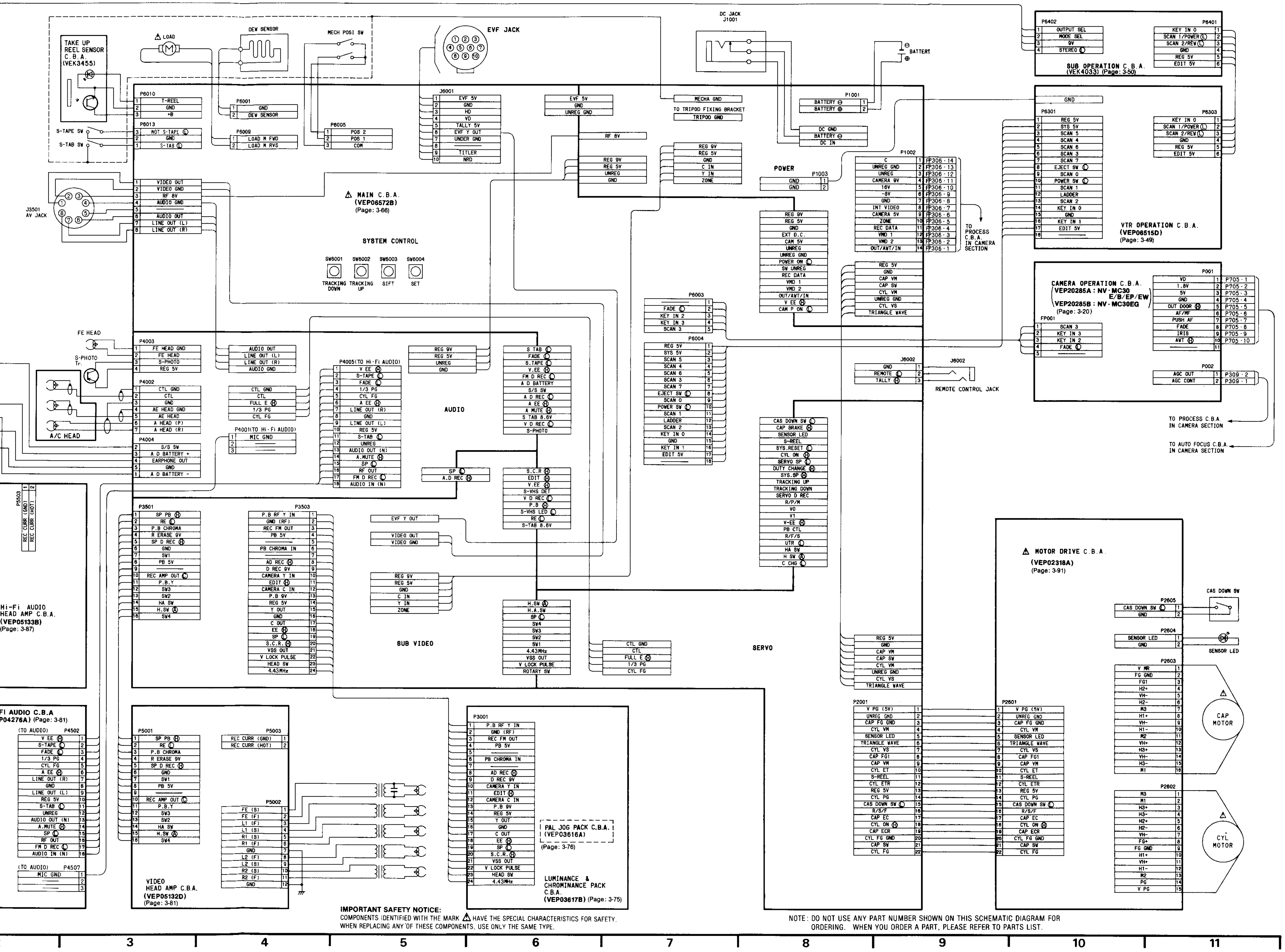

PIEZO
GND
HOLE IN ⊕
HOLE OUT ⊕
HOLE IN ⊖
HOLE OUT ⊖
FOCUS MOTOR ⊖
FOCUS MOTOR ⊕
P703
FOCUS MOTOR
P704
P705
VD
1.8V
5V
OUT DOOR Ⓗ
AUTO/MANUAL
ONE SHOT AF
FADE
BLC/IRIS
AWT Ⓗ
AUTO FOCUS
C.B.A.
(VEP28018H)
(Page: 3-25)
CAMERA OPERATION
C.B.A.
VEP20285A: NV-MC30E/B/EP/EW
VEP20285B: NV-MC30EG
(Page: 3-20)
P001
FP001 (TO SYSTEM CTL)
SCAN 3
KEY IN 3
KEY IN 2
P6003-5
P6003-4
P6003-3
P6003-2
P6003-1
AWT(3) C.B.A.
(VEP22083A)
(Page: 3-41)
P002
AGC OUT
AGC CONT
5
6
7

3-41. VTR INTERCONNECTION SCHEMATIC DIAGRAM


G
F
E
D
C
B
A
TAKE UP REEL SENSOR C.B.A. (VEK3455)
LOAD
DEW SENSOR
MECH POSI SW
EVF JACK
S-TAPE SW
S-TAB SW
J3501 AV JACK
MAIN C.B.A. (VEP06572B) (Page: 3-66)
SYSTEM CONTROL
SW6001
SW6002
SW6003
SW6004
TRACKING DOWN
TRACKING UP
SIFT
SET
START /STOP SWITCH C.B.A. (VEK3970) (Page: 3-66)
FE HEAD
S-PHOTO Tr.
A/C HEAD
A.D BATTERY
EARPHONE JACK
EARPHONE C.B.A. (VEK3976) (Page: 3-66)
AUDIO
Hi-Fi AUDIO HEAD AMP C.B.A. (VEP05133B) (Page: 3-87)
SUB VIDEO
Hi-Fi AUDIO C.B.A. (VEP04276A) (Page: 3-81)
EXT.MIC (STEREO)
MIC
EXT.MIC(+B)
VIDEO HEAD AMP C.B.A. (VEP05132D) (Page: 3-81)
PAL JOG PACK C.B.A. (VEP03616A) (Page: 3-76)
LUMINANCE & CHROMINANCE PACK C.B.A. (VEP03617B) (Page: 3-75)
1
2
3
4
5
6

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NECTION SCHEMATIC DIAGRAM

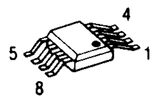

TAKE UP REEL SENSOR C.B.A. (VEK3455)
LOAD
DEW SENSOR
MECH POSI SW
EVF JACK
DC JACK J1001
BATTERY
S-TAPE SW
S-TAB SW
P6010
T-REEL
GND
+B
P6013
NOT S-TAPE
S-TAB
P6001
DEW SENSOR
P6009
LOAD M FWD
LOAD M RVS
P6005
POS 2
POS 1
COM
J6001
EVF 5V
HD
VD
TALLY 5V
EVF Y OUT
UNDER GND
TITLER
NRD
UNREG GND
MECHA GND
TO TRIPOD FIXING BRACKET
TRIPOD GND
P1001
BATTERY ⊖
BATTERY ⊕
DC GND
DC IN
RF 8V
REG 9V
REG 5V
UNREG
C IN
Y IN
ZONE
POWER
P1003
P1002
CAMERA 9V
16V
-8V
INT VIDEO
CAMERA 5V
REC DATA
VMD 1
VMD 2
OUT/AWT/IN
FP306
TO PROCESS C.B.A. IN CAMERA SECTION
J3501 AV JACK
VIDEO OUT
VIDEO GND
RF 8V
AUDIO GND
AUDIO OUT
LINE OUT (L)
LINE OUT (R)
⚠ MAIN C.B.A. (VEP06572B) (Page: 3-66)
SYSTEM CONTROL
SW6001
SW6002
SW6003
SW6004
TRACKING DOWN
TRACKING UP
SIFT
SET
EXT D.C.
CAM 5V
POWER ON
SW UNREG
V EE
CAM P ON
P6003
FADE
KEY IN 2
KEY IN 3
SCAN 3
P6004
SYS 5V
SCAN 5
SCAN 4
SCAN 6
SCAN 7
EJECT SW
SCAN 0
POWER SW
SCAN 1
LADDER
SCAN 2
KEY IN 0
KEY IN 1
EDIT 5V
CAP VM
CAP SW
CYL VM
CYL VS
TRIANGLE WAVE
J6002
REMOTE
TALLY
REMOTE CONTROL JACK
P6402
OUTPUT SEL
MODE SEL
9V
STEREO
P6401
SCAN 1/POWER
SCAN 2/REW
SUB OPERATION C.B.A. (VEK4033) (Page: 3-50)
P6301
P6303
VTR OPERATION C.B.A. (VEP06515D) (Page: 3-49)
CAMERA OPERATION C.B.A.
VEP20285A : NV-MC30 E/B/EP/EW
VEP20285B : NV-MC30EG
(Page: 3-20)
FP001
P001
1.8V
OUT DOOR
AF/MF
PUSH AF
IRIS
AWT
P705
P002
AGC OUT
AGC CONT
P309
TO PROCESS C.B.A. IN CAMERA SECTION
TO AUTO FOCUS C.B.A. IN CAMERA SECTION
FE HEAD
S-PHOTO Tr.
A/C HEAD
P4003
FE HEAD GND
S-PHOTO
P4002
CTL GND
CTL
AE HEAD GND
AE HEAD
A HEAD (P)
A HEAD (R)
P4004
S/S SW
A D BATTERY +
EARPHONE OUT
A D BATTERY -
FULL E
1/3 PG
CYL FG
P4001(TO Hi-Fi AUDIO)
MIC GND
P4005(TO Hi-Fi AUDIO)
S-TAPE
A EE
LINE OUT (R)
LINE OUT (L)
S-TAB
AUDIO OUT (N)
A.MUTE
SP
RF OUT
FM D REC
AUDIO IN (N)
AUDIO
S TAB
S.TAPE
V.EE
A D BATTERY
A D REC
A MUTE
S TAB 8.6V
V D REC
S-PHOTO
A.D REC
S.C.R
EDIT
S-VHS DET
V D REC
P.B
S-VHS LED
RE
S-TAB 8.6V
CAS DOWN SW
CAP BRAKE
SENSOR LED
S-REEL
SYS.RESET
CYL ON
SERVO SP
DUTY CHANGE
SYS.SP
TRACKING UP
TRACKING DOWN
SERVO D REC
R/P/M
VO
V1
V-EE
PB CTL
R/F/S
UTR
HA SW
H SW
C CHG
P5503
REC CURR (GND)
REC CURR (HOT)
Hi-Fi AUDIO HEAD AMP C.B.A. (VEP05133B) (Page: 3-87)
P3501
SP PB
P.B CHROMA
R ERASE 9V
SP D REC
SW1
PB 5V
REC AMP OUT
P.B.Y
SW3
SW2
HA SW
H.SW
SW4
P3503
P.B RF Y IN
GND (RF)
REC FM OUT
PB CHROMA IN
AD REC
D REC 9V
CAMERA Y IN
CAMERA C IN
P.B 9V
Y OUT
C OUT
EE
VSS OUT
V LOCK PULSE
HEAD SW
4.43MHz
EVF Y OUT
SUB VIDEO
H.A.SW
ROTARY SW
SERVO
⚠ MOTOR DRIVE C.B.A. (VEP02318A) (Page: 3-91)
P2605
P2604
SENSOR LED
P2603
CAP MOTOR
P2602
CYL MOTOR
Y MR
FG GND
FG1
H2+
VH-
H2-
M3
H1+
H1-
M2
VH+
H3+
H3-
M1
FG+
PG
V PG
P2001
P2601
V PG (5V)
CAP FG GND
CAP FG1
CYL ET
CYL ETR
CYL PG
R/S/F
CAP EC
CAP ECR
CYL FG GND
CYL FG
Fi AUDIO C.B.A. (P04278A) (Page: 3-81)
(TO AUDIO)
P4502
P4507
P5001
P5003
P5002
FE (S)
FE (F)
L1 (F)
L1 (S)
R1 (S)
R1 (F)
L2 (F)
L2 (S)
R2 (S)
R2 (F)
VIDEO HEAD AMP C.B.A. (VEP05132D) (Page: 3-81)
P3001
PAL JOG PACK C.B.A. (VEP03616A) (Page: 3-76)
LUMINANCE & CHROMINANCE PACK C.B.A. (VEP03617B) (Page: 3-75)
3
4
5
6
7
8
9
10
11

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

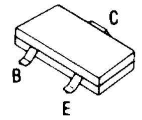
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

Next Page:
ICs & TRs INTERCONNECTION Section

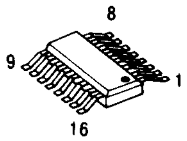
3-42. ICs & TRs INFORMATION



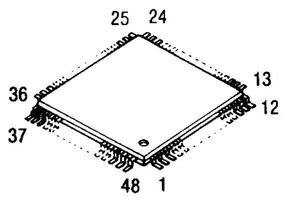
AN1358S
µPC358G2
µPC1513G
NJM4558MP
MSM6965-3MS
NJM3415M
MST001MS
MSM6989MS
LM2903M
BA7131F
LM2904M



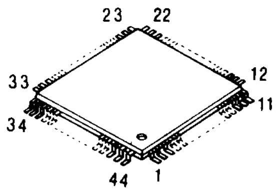
2SA1531	2SC3138
2SA812	2SC3930
2SA1255	2SC3931
2SA1532	2SC4176
2SA1610	2SD968A
2SB709	2SD1328
2SB710	2SD1819
2SB956	2SD1820
2SB970	2SD601
2SB970X	
2SB1218	
2SB1219	



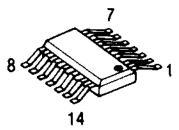
AN3819S
AN3820S
MN4052BS
µPD4094BG
AN2012S
TL1453CNS
µPD6142G101A
RZ4052BM


25 24
36
37
13
12
48 1

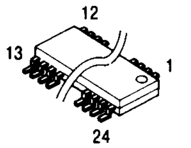
AN2154FAP
AN2254FAP
AN2584NFAP
AN3237FB
AN3972FB


23 22
33
34
12
11
44 1

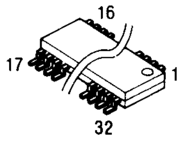
MN5107
MN67461VDTF
MN53015XBX



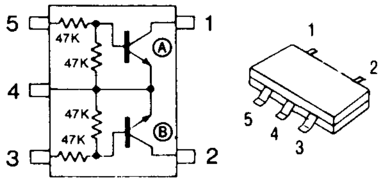
AN1324NS
S3500A2
LM2902M



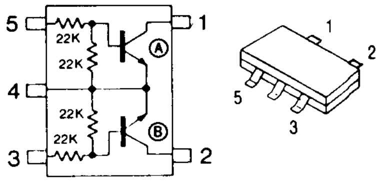
AN2510S
µPC2300G
AN3799S



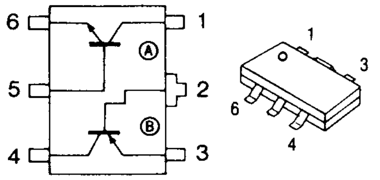
AN3932S


5
4
3
47K
47K
47K
47K
Ⓐ
Ⓑ
1
2
1
2
5
4
3

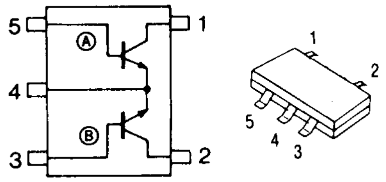
XN1113
FMA2


5
4
3
22K
22K
22K
22K
Ⓐ
Ⓑ
1
2
1
2
5
3

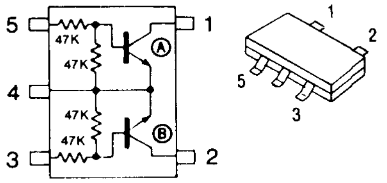
XN1212
FMG1


6
5
4
Ⓐ
Ⓑ
1
2
3
1
3
6
4

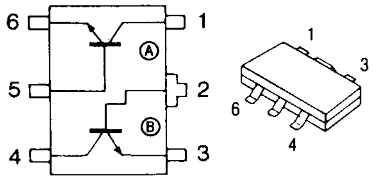
XN4601


5
4
3
Ⓐ
Ⓑ
1
2
1
2
5
4
3

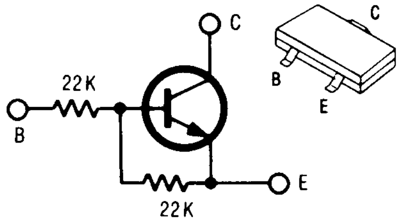
XN1501
FMW1


5
4
3
47K
47K
47K
47K
Ⓐ
Ⓑ
1
2
1
2
5
3

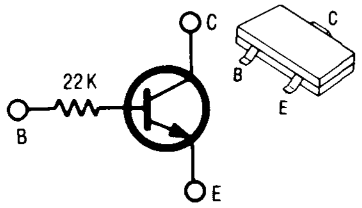
XN1213
FMG2


6
5
4
Ⓐ
Ⓑ
1
2
3
1
3
6
4

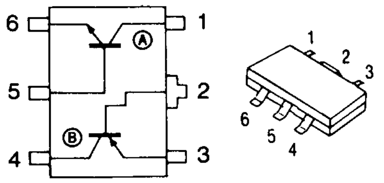
XN4501


C
22K
B
22K
E
C
B
E

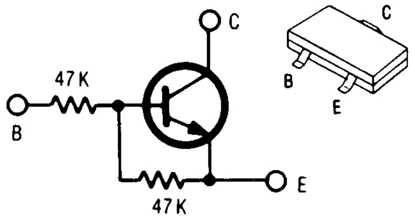
UN5212
GA1F4M



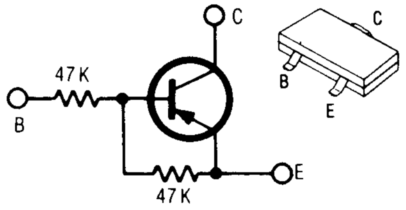
UN5217
GA1F4Z


6
5
4
Ⓐ
Ⓑ
1
2
3
1
2
3
6
5
4

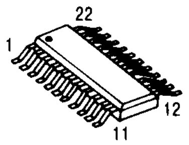
XN4608
XN4608X


C
47K
B
47K
E
C
B
E

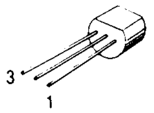
UN5213
GA1L4M


C
47K
B
47K
E
C
B
E

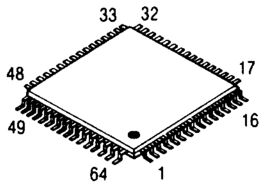
UN5113
GN1L4M



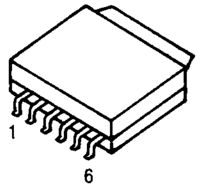
AN3592S
AN3311S



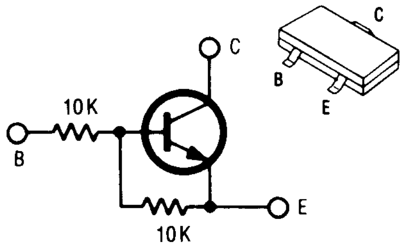
AN78N05


33 32
48
49
17
16
64 1

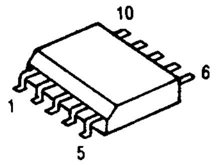
MN15867VNY



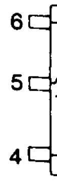
AN6663SP

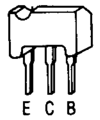

C
10K
B
10K
E
C
B
E

UN2211
DTA114EK

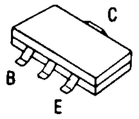


UN215

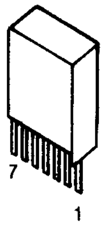




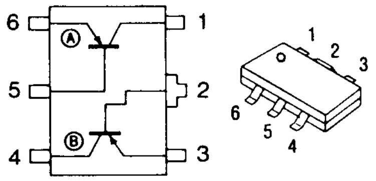
2SD2177S



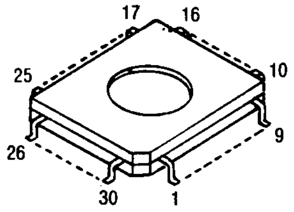
2SD874



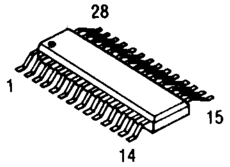
VCR0250


6
5
4
Ⓐ
Ⓑ
1
2
3
1
2
3
6
5
4

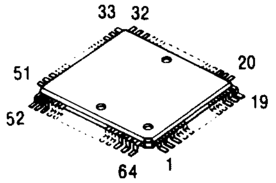
XN4401


17 16
25
10
26
9
30 1

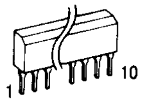
M51096AU



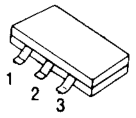
MN1551VYJS4
AN3798NS


33 32
51
52
20
19
64 1

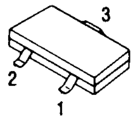
µPD75108G793



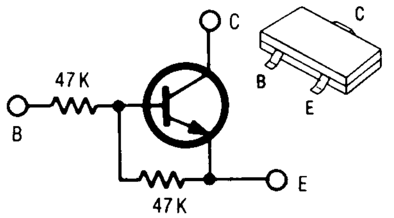
M54543ASL



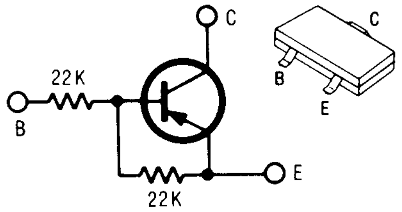
S81250HGRD



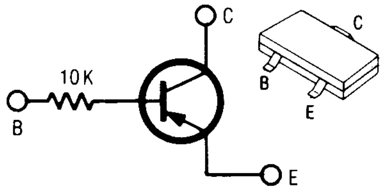
MN12821Q


C
47K
B
47K
E
C
B
E

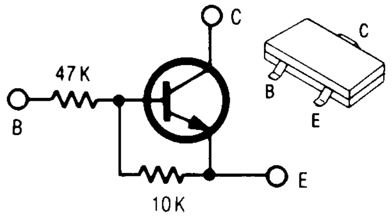
UN5213
GA1L4M


C
22K
B
22K
E
C
B
E

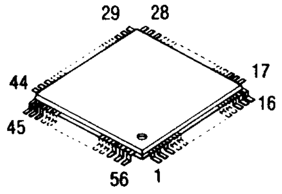
UN5211
GN1F4M



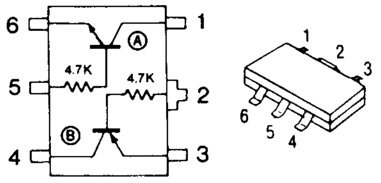
UN5115
GN1A4Z


C
47K
B
10K
E
C
B
E

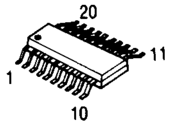
UN521E
GA1L4L


29 28
44
45
17
16
56 1

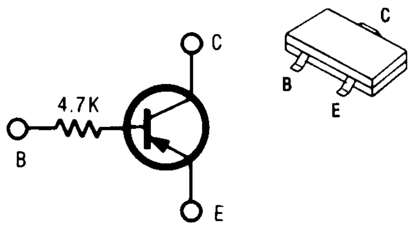
M52059FP


6
5
4
4.7K
4.7K
Ⓐ
Ⓑ
1
2
3
1
2
3
6
5
4

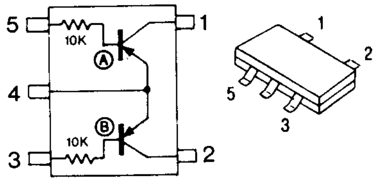
XN4316



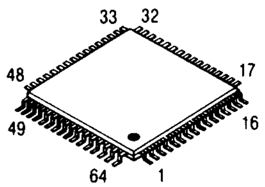
µPD6147G



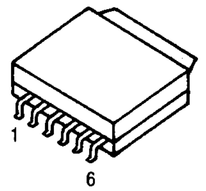
UN5116
GN1L3Z


5
4
3
10K
10K
Ⓐ
Ⓑ
1
2
1
2
5
3

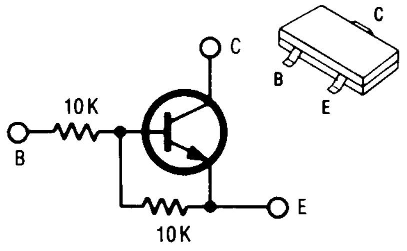
XN1115


33
32
48
17
49
16
64
1

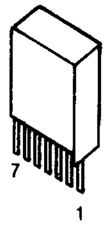
MN15867VNY



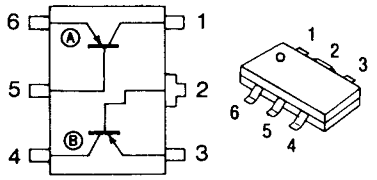
AN6663SP


C
10K
B
E
10K
C
B
E

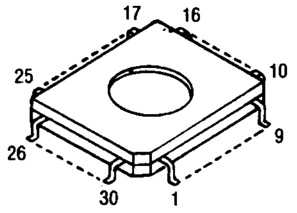
UN2211
DTA114EK



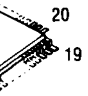
VCR0250


6
1
A
5
2
B
4
3
1
2
3
6
5
4

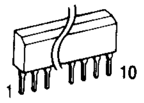
XN4401


17
16
25
10
26
9
30
1

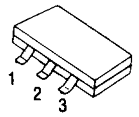
M51096AU



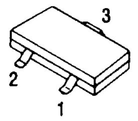
93



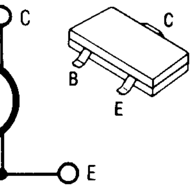
M54543ASL



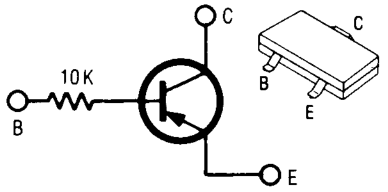
S81250HGRD



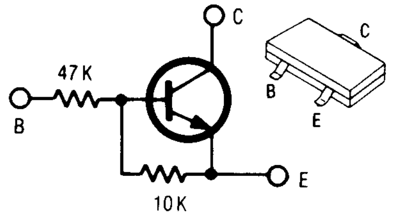
MN12821Q



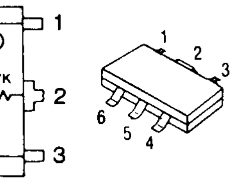
1
M



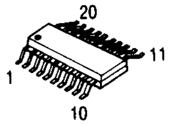
UN5115
GN1A4Z


C
47K
B
E
10K
C
B
E

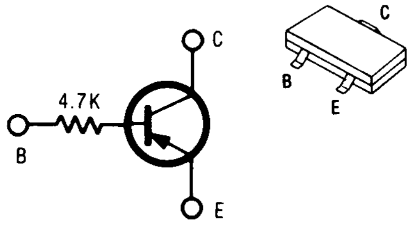
UN521E
GA1L4L



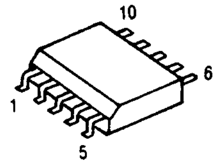
XN4316



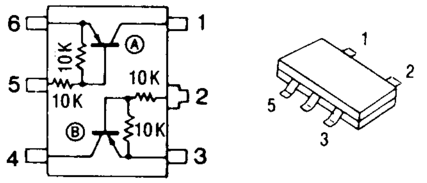
μPD6147G



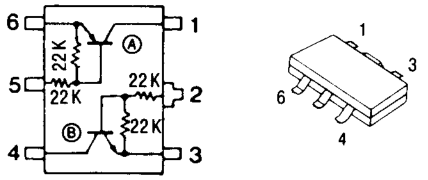
UN5116
GN1L3Z



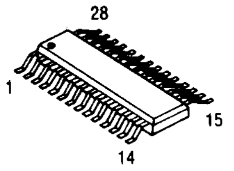
UN215


6
1
A
10K
10K
5
10K
2
B
10K
4
3
1
2
5
3

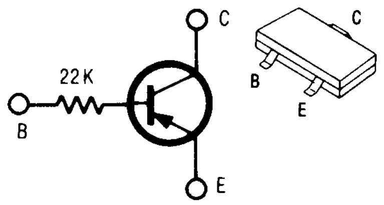
XN4111


6
1
22K
A
5
22K
22K
2
B
22K
4
3
1
3
6
4

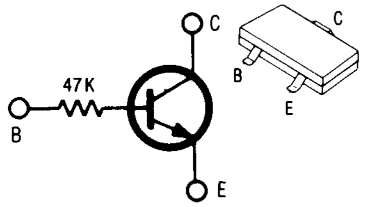
IMD2



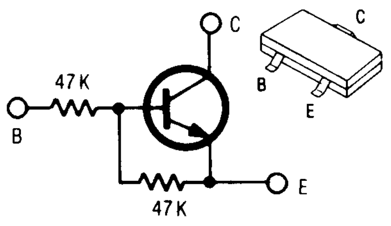
MN1551VYJS4
AN3798NS



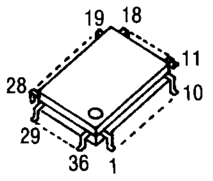
UN5117
GN1F4Z



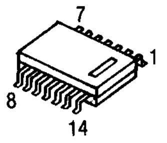
UN5210
GA1L4Z


C
47K
B
E
47K
C
B
E

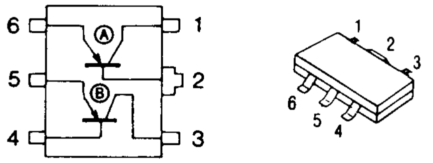
UN5213
GA1L4M


19
18
28
11
10
29
36
1

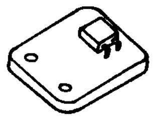
AN3819FBS



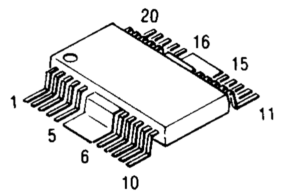
UN207


6
A
1
5
2
B
4
3
1
2
3
6
5
4

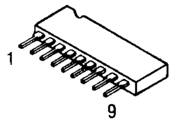
XN6401



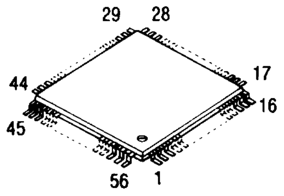
ON2170LF


20
16
15
1
11
5
6
10

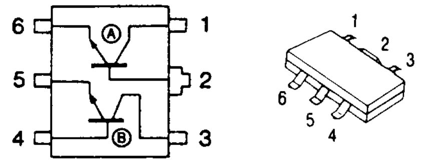
TA8402F



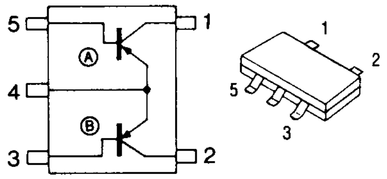
BA3308


29
28
44
17
16
45
56
1

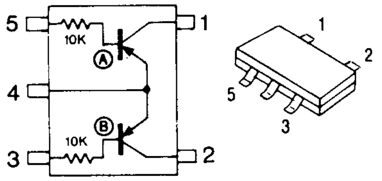
M52059FP


6
A
1
5
2
4
B
3
1
2
3
6
5
4

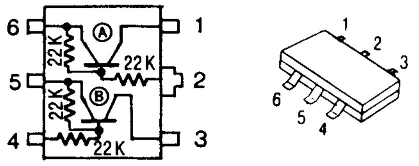
XN6501


5
1
A
4
B
3
2
1
2
5
3

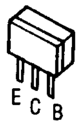
XN1401
FMS1


5
10K
A
1
4
10K
B
3
2
1
2
5
3

XN1115


6
22K
A
1
5
22K
B
22K
2
4
22K
3
1
2
3
6
5
4

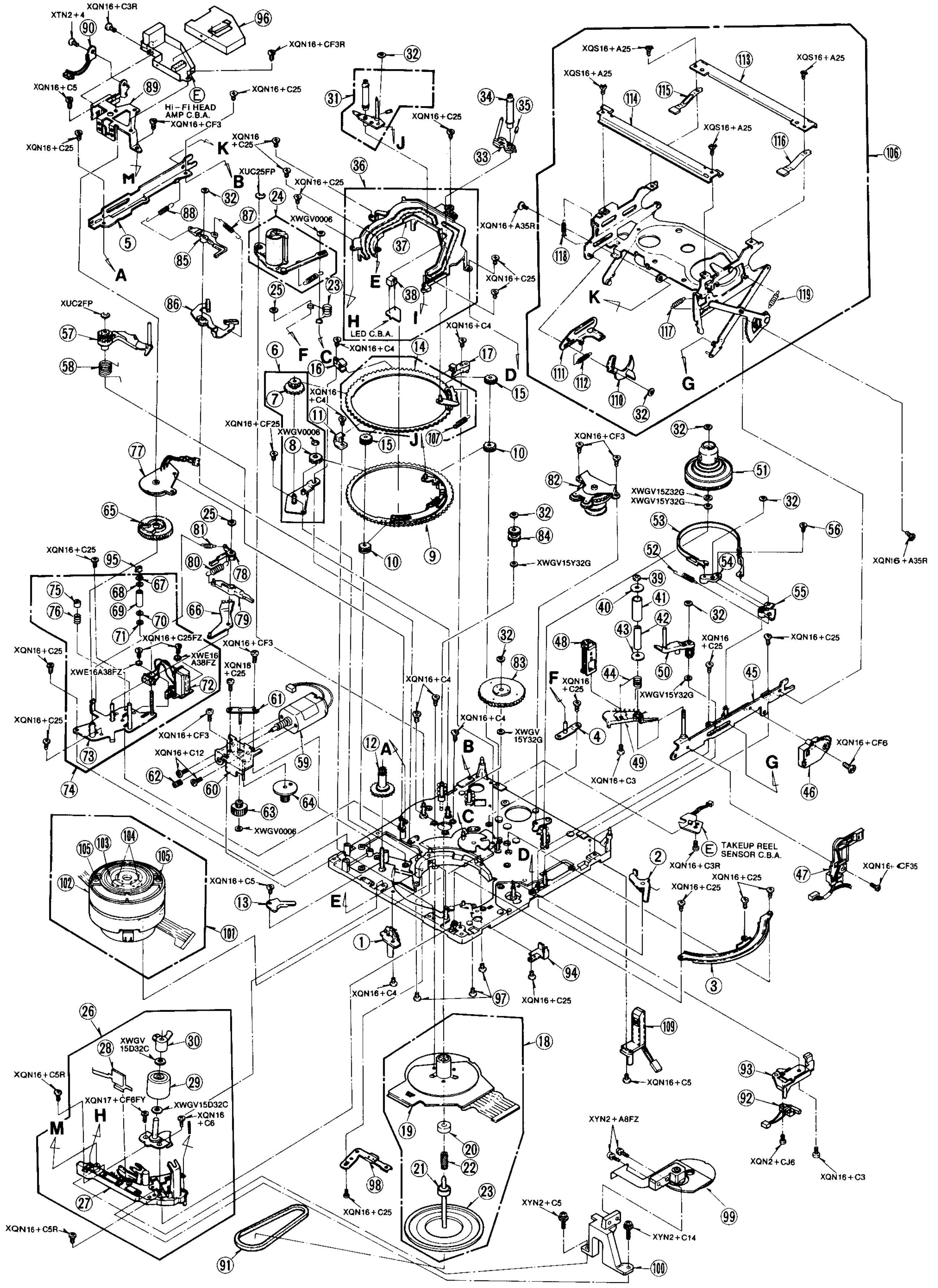
XN6212



2SA1175

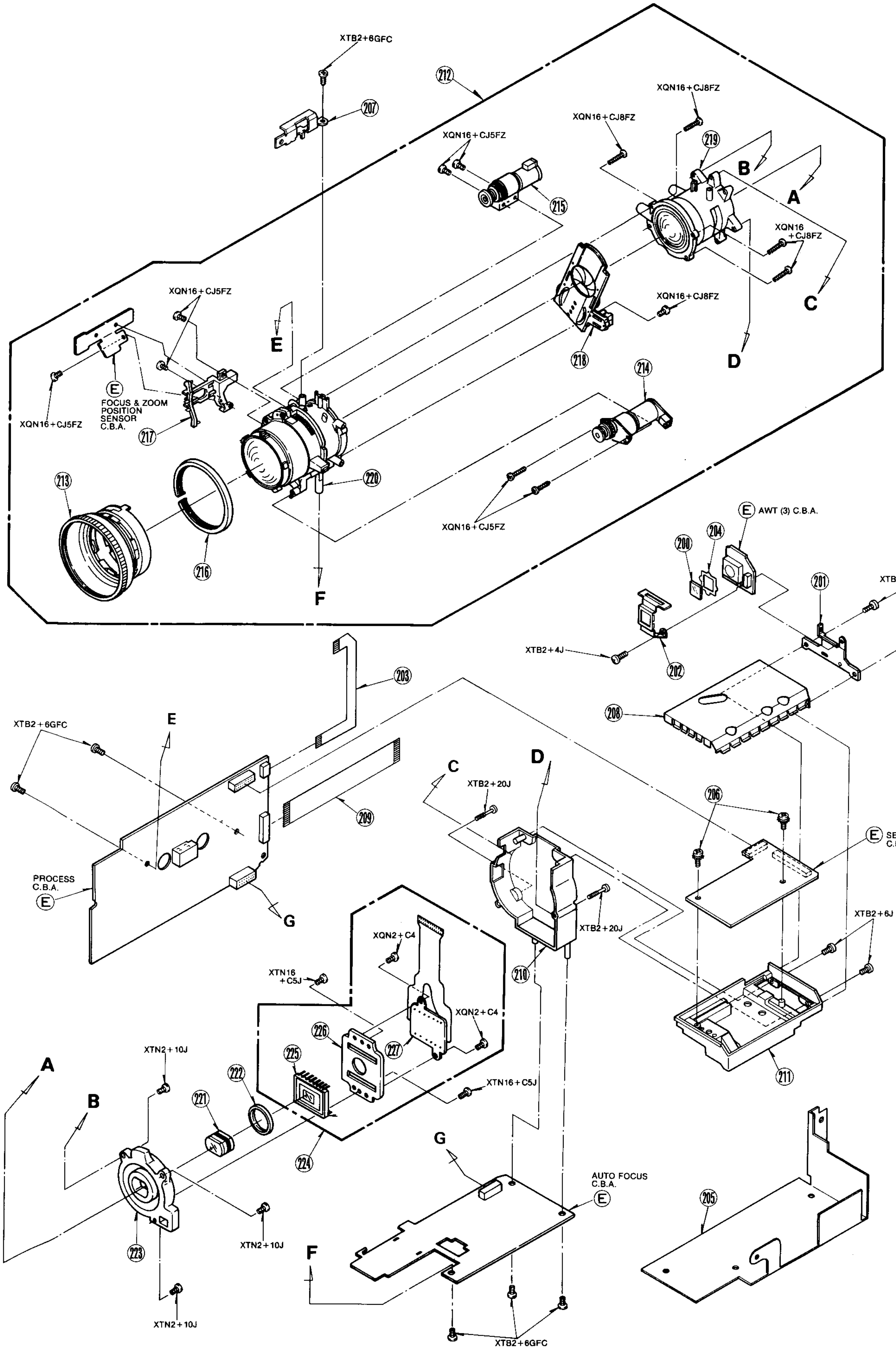
SECTION 4
EXPLODED VIEWS & PARTS LIST

4-1. EXPLODED VIEWS ❶ VTR MECHANISM SECTION



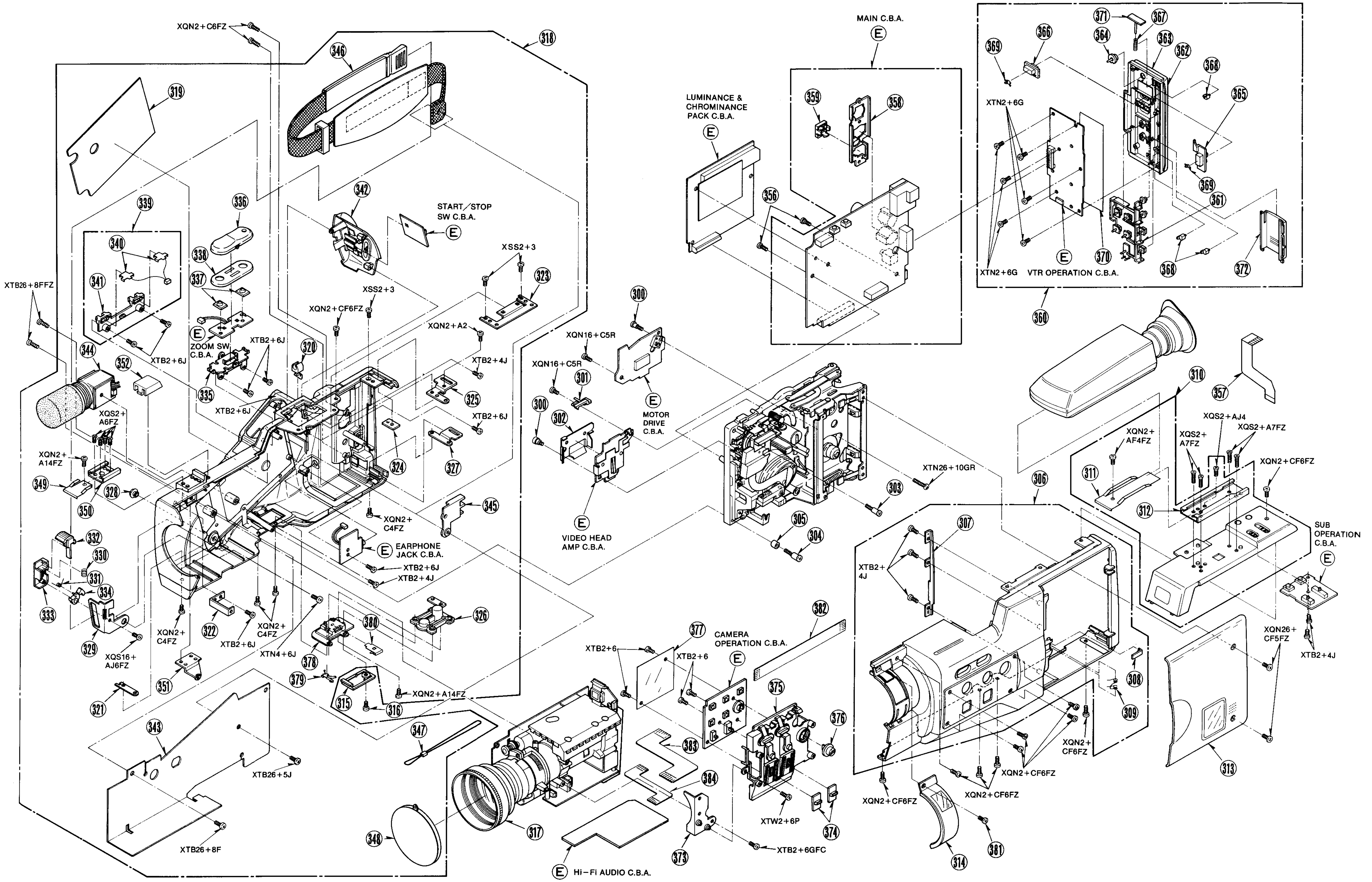
XTN2+4
XQN16+C3R
90
96
XQN16+CF3R
XQN16+C5
89
E
Hi-FI HEAD AMP C.B.A.
XQN16+CF3
XQN16+C25
XQN16+C25
K
XQN16 +C25
M
B
XUC25FP
5
A
88
32
87
85
86
32
31
J
XQN16+C25
34
35
33
24
XWGV0006
23
25
XQN16+C25
36
37
E
38
H
LED C.B.A.
I
XQN16+A35R
XQN16+C25
XQN16+C4
XQS16+A25
XQS16+A25
113
XQS16+A25
115
114
XQS16+A25
116
106
118
K
119
117
111
112
110
32
G
XUC2FP
57
58
F
C
XQN16+C4
6
16
14
17
D
15
7
XQN16 +C4
11
XQN16+CF25
XWGV0006
8
15
J
107
10
9
10
XQN16+CF3
32
82
51
XWGV15Z32G
XWGV15Y32G
32
77
65
25
81
80
78
XQN16+C25
95
67
68
69
70
71
66
79
75
76
XQN16+C25
XWE16A38FZ
XQN16+C25FZ
XWE16 A38FZ
72
XQN16+C25
73
74
XQN16+CF3
XQN16 +C25
61
XQN16+CF3
XQN16+C12
62
60
59
63
XWGV0006
64
12
A
XQN16+C4
B
XQN16+C4
XWGV 15Y32G
32
84
XWGV15Y32G
32
83
53
56
52
54
39
40
41
55
42
43
32
48
44
XWGV15Y32G
F
XQN16 +C25
4
49
XQN16+C3
50
XQN16 +C25
XQN16+C25
45
G
46
XQN16+CF6
XQN16+A35R
C
D
E
TAKEUP REEL SENSOR C.B.A.
XQN16+C3R
2
XQN16+C25
XQN16+C25
47
XQN16+CF35
105
103
104
105
102
101
XQN16+C5
13
E
1
XQN16+C4
97
94
XQN16+C25
3
109
XQN16+C5
18
26
XWGV 15D32C
28
30
29
XQN16+C5R
XQN17+CF6FY
XWGV15D32C
XQN16 +C6
H
M
I
27
19
20
22
21
23
98
XQN16+C25
93
92
XQN2+CJ6
XQN16+C3
XYN2+A8FZ
XYN2+C5
99
XYN2+C14
100
XQN16+C5R
91

❷ CAMERA LENS SECTION

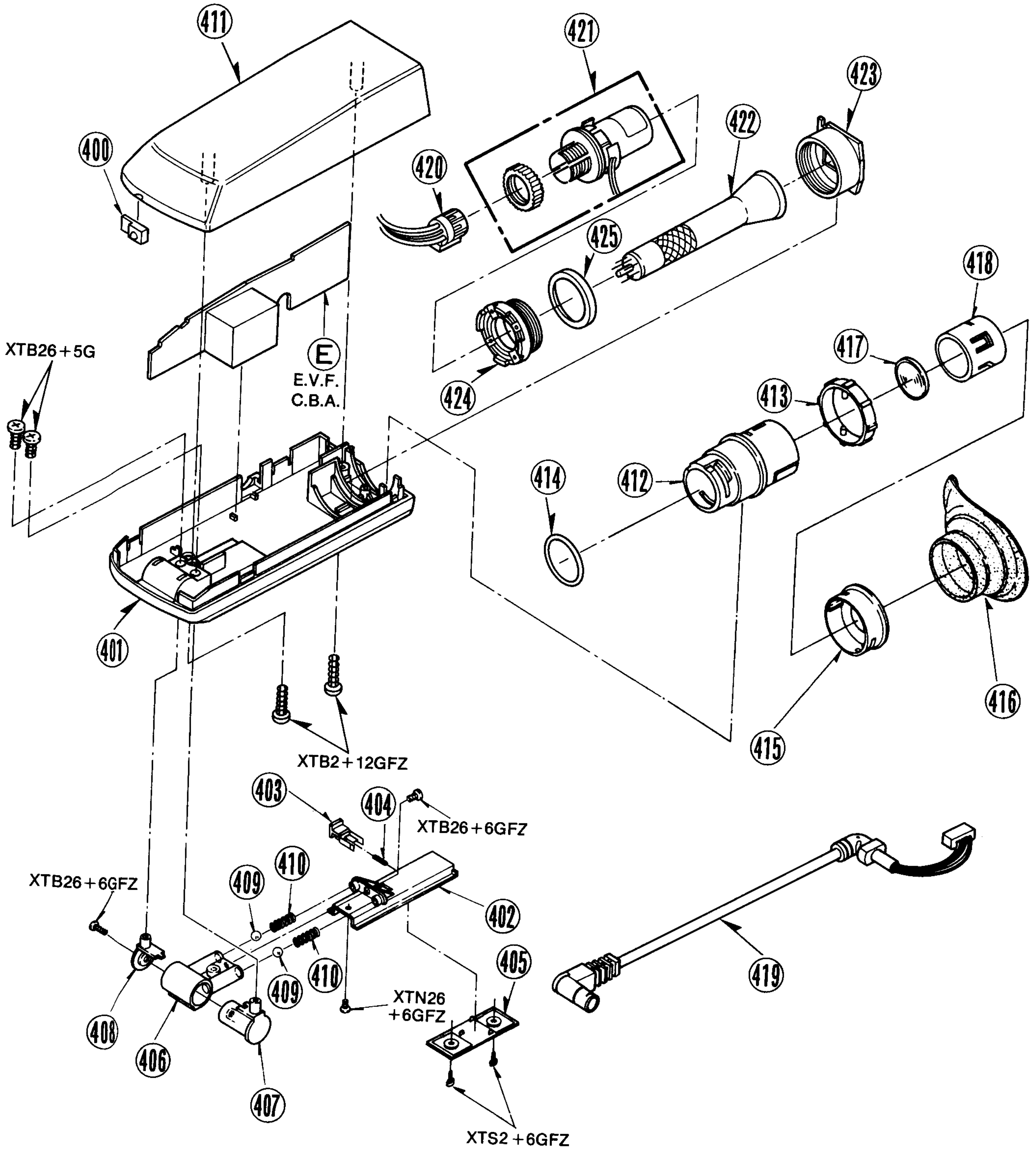


XTB2+6GFC
212
207
XQN16+CJ8FZ
XQN16+CJ8FZ
XQN16+CJ5FZ
219
B
A
215
XQN16
+CJ8FZ
C
XQN16+CJ5FZ
E
XQN16+CJ8FZ
D
218
214
E
FOCUS & ZOOM
POSITION
SENSOR
C.B.A.
XQN16+CJ5FZ
217
220
213
216
XQN16+CJ5FZ
F
E AWT (3) C.B.A.
200
204
201
XTB2+6GFC
XTB2+4J
202
203
208
XTB2+6GFC
E
209
C
D
XTB2+20J
206
E SENSOR
C.B.A.
PROCESS
C.B.A.
E
G
XQN2+C4
XTB2+20J
XTB2+6J
XTN16
+C5J
210
XQN2+C4
226
227
211
A
XTN2+10J
225
222
XTN16+C5J
B
221
224
G
AUTO FOCUS
C.B.A.
E
205
223
XTN2+10J
F
XTN2+10J
XTB2+6GFC

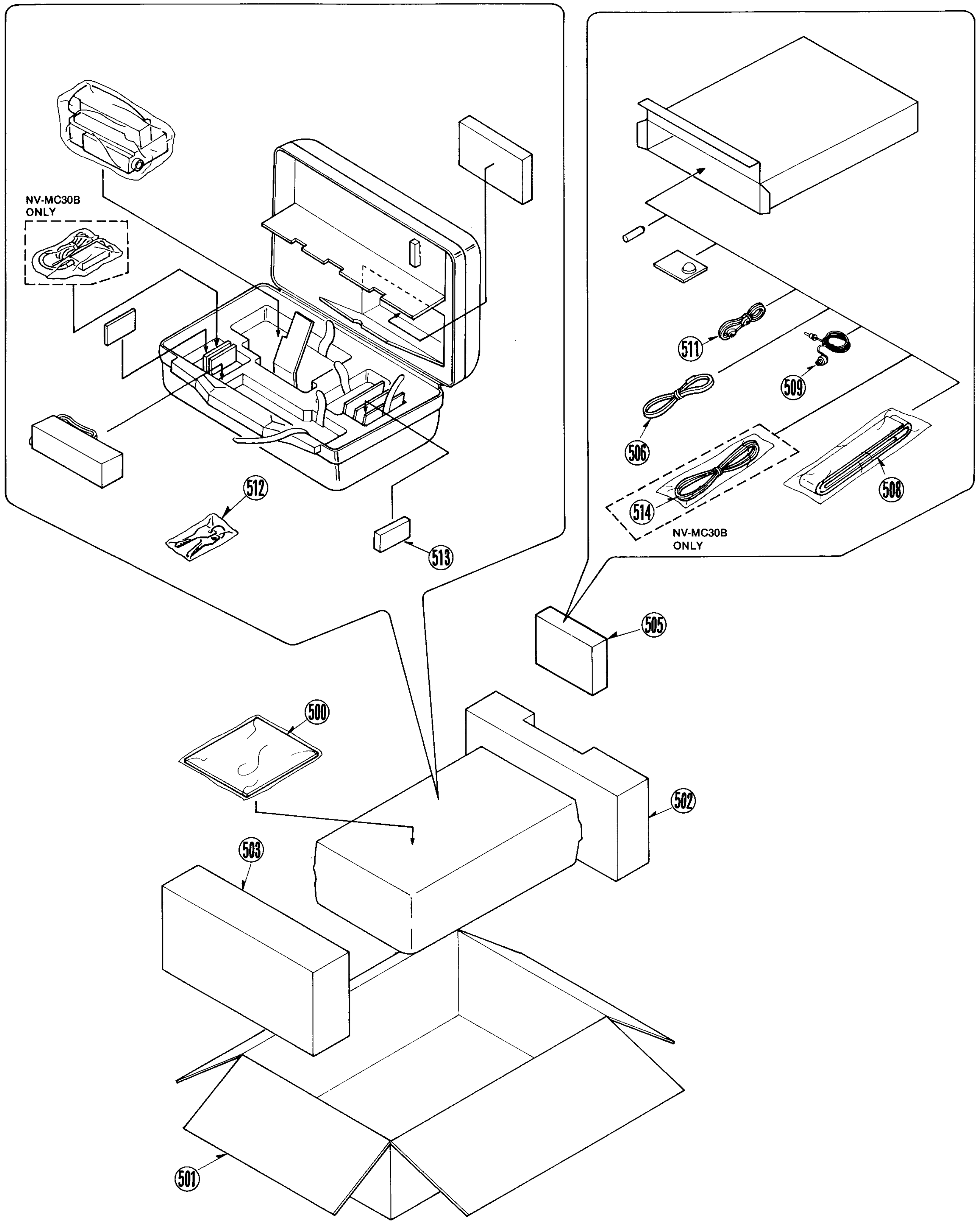
❸ CHASSIS & FRAME SECTION


XQN2+C6FZ
318
346
319
339
340
341
336
338
337
342
START/STOP SW C.B.A.
XSS2+3
323
XSS2+3
XQN2+CF6FZ
XQN2+A2
XTB26+8FFZ
E ZOOM SW C.B.A.
XTB2+6J
320
XTB2+6J
344
352
335
XTB2+4J
325
XTB2+6J
XTB2+6J
324
327
XQS2+A6FZ
XQN2+A14FZ
349
350
328
345
XQN2+C4FZ
E EARPHONE JACK C.B.A.
XTB2+6J
XTB2+4J
332
330
331
334
333
329
XQS16+AJ6FZ
XQN2+C4FZ
322
XTB2+6J
XQN2+C4FZ
XTN4+6J
380
326
378
379
351
321
315
316
XQN2+A14FZ
343
XTB26+5J
XTB26+8F
347
348
317
E Hi-FI AUDIO C.B.A.
383
384
373
XTB2+6GFC
LUMINANCE & CHROMINANCE PACK C.B.A.
E
MAIN C.B.A.
E
359
358
356
300
XQN16+C5R
XQN16+C5R
301
300
302
E MOTOR DRIVE C.B.A.
E VIDEO HEAD AMP C.B.A.
XTN26+10GR
303
305
304
382
377
XTB2+6
XTB2+6
CAMERA OPERATION C.B.A.
E
375
376
374
XTW2+6P
371
367
369
366
364
363
362
368
365
XTN2+6G
369
361
370
368
372
E
XTN2+6G VTR OPERATION C.B.A.
360
310
357
XQS2+AJ4
XQS2+A7FZ
XQN2+AF4FZ
XQS2+A7FZ
XQN2+CF6FZ
311
312
306
307
XTB2+4J
SUB OPERATION C.B.A.
E
XQN26+CF5FZ
XTB2+4J
308
309
XQN2+CF6FZ
XQN2+CF6FZ
XQN2+CF6FZ
XQN2+CF6FZ
313
314
381

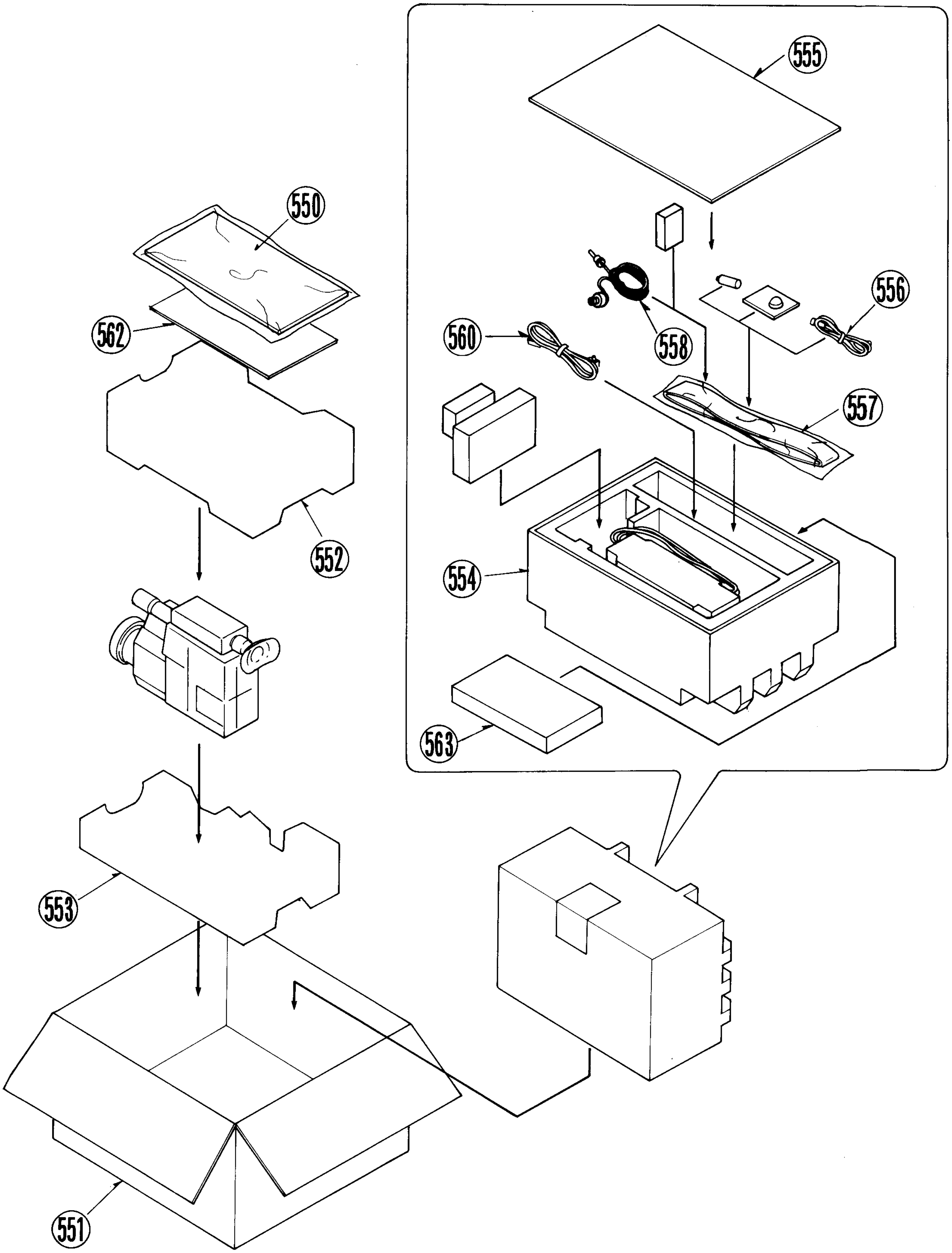
❹ E.V.F. SECTION


411
421
400
420
423
422
425
418
XTB26+5G
E
E.V.F.
C.B.A.
424
417
413
414
412
401
416
415
XTB2+12GFZ
403
404
XTB26+6GFZ
XTB26+6GFZ
409
410
402
405
410
409
XTN26
+6GFZ
408
406
419
407
XTS2+6GFZ

❺ PACKING PARTS & ACCESSORIES SECTION (NV-MC30B/EP)


NV-MC30B
ONLY
512
513
511
509
506
508
514
NV-MC30B
ONLY
505
500
502
503
501

❻ PACKING PARTS & ACCESSORIES SECTION (NV-MC30E/EG/EW)


555
550
556
560
558
562
557
552
554
563
553
551

4-2. MECHANICAL REPLACEMENT PARTS LIST

Note: 1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
1(1)		VMD1100	LOADING GUIDE (T)	1	
2(1)		VXL1771	EJECT LEVER UNIT	1	
3(1)		VMD1077	LOADING GUIDE (S)	1	
4(1)		VXA3033	CASSETTE SUPPORT	1	
			PLATE UNIT		
5(1)		VMA7766	CASSETTE STAND (T)	1	
6(1)		VXA3052	LOADING GEAR	1	
			BASE UNIT		
7(1)		VDG0410	LOADING GEAR (S)	1	
8(1)		VDG0411	LOADING GEAR (T)	1	
9(1)		VXA3037	LOADING RING (T) UNIT	1	
10(1)		VDG0409	RING GUIDE GEAR (T)	2	
11(1)		VMD1263	RING GUIDE (2)	1	
12(1)		VDG0499	TERMINAL GEAR	1	
13(1)		VMD1265	RING LIMITER	1	
14(1)		VXA3038	LOADING RING (S) UNIT	1	
15(1)		VDG0408	RING GUIDE GEAR (S)	1	
16(1)		VMD1262	RING GUIDE (1)	1	
17(1)		VMD1264	RING GUIDE (3)	1	
18(1)		VEM0284	CAPSTAM MOTOR UNIT	1	
19(1)		VEK3345	STATOR UNIT	1	
20(1)		VDB0898	UPPER BEARING	1	
21(1)		VDB0899	UNDER BEARING	1	
22(1)		VMB1173	THRUST SPRING	1	
23(1)		VMB1705	CAM SPRING	1	
24(1)		VXL1980	PRESSURE LEVER	1	
25(1)		VMX1042	CUT WASHER (B)	2	
26(1)		VXA3771	V STOPPER BASE UNIT	1	
27(1)		VMD1523	V STOPPER BASE	1	
28(1)		VMC0360	PRESSURE PLATE	1	
29(1)		VDP1282	IMPEDANCE ROLLER	1	
30(1)		VMD1407	SUPPLY UPPER LIMITER	1	
31(1)		VXA3380	SHAFT HOLDER (T)	1	
32(1)		VMX1061	CUT WASHER (A)	9	
33(1)		VXA3064	SHAFT HOLDER S1 UNIT	1	
34(1)		VXJ0062	S1 ROLLER POST UNIT	1	
35(1)		VHD0392	SCREW	1	
36(1)		VXA3042	LOADING GUIDE UNIT	1	
37(1)		VMD1272	LOADING GUIDE	1	
38(1)		TLN107A	SENSOR LED	1	
39(1)		VHN0047	NUT	1	
40(1)		VMX1535	WASHER	1	
41(1)		VDP1209	S1 ROLLER	1	
42(1)		VMX1628	S1 COLLAR	1	
43(1)		VMX1335	S1 LOWER LIMITER	1	
44(1)		VMB1785	ERASE HEAD SPRING	1	
45(1)		VXA3053	CASSETTE STAND (S) 1	1	
			UNIT		
46(1)		VXP0891	DAMPER UNIT	1	
47(1)		VEK3446	END SENSOR UNIT	1	
48(1)		VBS0045	FE HEAD	1	
49(1)		VML2177	ERASE HEAD LEVER	1	
50(1)		VXL1658	TENSION ARM UNIT	1	
51(1)		VXR0175	SUPPLY REEL TABLE	1	
52(1)		VMB1868	TENSION SPRING	1	
53(1)		VXZ0249	TENSION BAND UNIT	1	
54(1)		VML2281	BAND ARM	1	
55(1)		VMD1082	BAND ADJUSTMENT PIECE	1	
56(1)		VHD0390	BAND ARM SCREW	1	
57(1)		VXL1789	TAPE GUIDE ARM F UNIT	1	
58(1)		VMB1707	TAPE GUIDE ARM SPRING	1	
59(1)		VEM0317	LOADING MOTOR (1)	1	
			UNIT		
60(1)		VXA3374	LOADING MOTOR	1	
			BRACKET UNIT		
61(1)		VXA3375	MOTOR GEAR BASE UNIT	1	
62(1)		VHD0442	WORM ADJUSTMENT SCREW	1	
63(1)		VDG0495	MOTOR GEAR A	1	
64(1)		VDG0494	MOTOR GEAR B	1	
65(1)		VDK0017	CONTROL CAM	1	
66(1)		VXP0904	SECTOR GEAR UNIT	1	
67(1)		VHN0065	T3 POST NUT	1	
68(1)		VMX1472	T3 POST FLANGE	1	
69(1)		VMX1251	P1 SPACER	1	
70(1)		VMX1471	T3 POST BOTTOM	1	
71(1)		VMB1716	T3 POST SPRING	1	
72(1)		VED0088	A/C HEAD (1) UNIT	1	
73(1)		VXA3671	A/C HEAD PLATE UNIT	1	
74(1)		VXA3382	A/C HEAD BASE UNIT	1	
75(1)		VHN0133	A/C HEAD ADJUST SCREW	1	
76(1)		VMB1995	A/C HEAD SPRING	1	
77(1)		VES0416	MODE SELECT SWITCH	1	
78(1)		VXL1675	TAPE GUIDE LEVER	1	
			(2) UNIT		
79(1)		VML2191	TAPE GUIDE LEVER (1)	1	
80(1)		VMB1971	TAPE GUIDE LEVER SPRING	1	
81(1)		VMB1872	TAPE GUIDE LEVER	1	
			SPRING (2)		
82(1)		VXP0922	IDLER UNIT	1	
83(1)		VXP0890	CLUTCH GEAR (T) UNIT	1	
84(1)		VDG0407	TAKEUP REEL GEAR	1	
85(1)		VML2026	SOFT BRAKE ARM	1	
86(1)		VXL1670	SOFT BRAKE UNIT	1	
87(1)		VMB1710	SOFT BRAKE SPRING (1)	1	
88(1)		VMB1871	SOFT BRAKE SPRING (2)	1	
89(1)		VMA7764	H.A PLATE	1	
90(1)		VEE5010	DEW SENSOR UNIT	1	
91(1)		VDV0170	DRIVE BELT	1	
92(1)		VES0470	CASSETTE DOWN SW	1	
93(1)		VMD1266	CASSETTE DOWN SW	1	
			HOLDER		
94(1)		VMA7112	MR SHIELD COVER	1	
95(1)		VMD1212	T3 POST CAP	1	
96(1)		VSC2604	HI-FI HEAD AMP SHIELD	1	
			(UPPER)		
97(1)		VHD0389	CYLINDER SCREW	3	
98(1)		VXS0077	EARTH BRUSH UNIT	1	
99(1)		VXL1957	UPPER RT (S) ARM UNIT	1	
100(1)		VMA7801	STATOR ARM (2)	1	
101(1)		VEG0719	CYLINDER UNIT	1	<!>
102(1)		VEH0445	UPPER CYLINDER UNIT	1	<!>
103(1)		VET0081	UPPER RT (R) UNIT	1	
104(1)		VHD0288	UPPER CYLINDER SCREW	2	
105(1)		VHD0443	UPPER RT (R) SCREW	2	
106(1)		VXA3376	CASSETTE UP UNIT	1	
107(1)		VMB1714	LOADING RING (S) SPRING	1	
109(1)		VST0099	SAFETY TAB SW	1	
110(1)		VML2289	OPEN LEVER	1	
111(1)		VXL1676	OPEN SLIDE LEVER (1)	1	
			UNIT		
112(1)		VMB1721	OPEN SLIDE LEVER	1	
			SPRING		
113(1)		VMA7772	HOLDER STAY (F)	1	
114(1)		VMA7771	HOLDER STAY (R)	1	
115(1)		VXA2959	CATCH PLATE (T) UNIT	1	
116(1)		VXA2958	CATCH PLATE (S) UNIT	1	
117(1)		VMB1860	LOCK SPRING	1	
118(1)		VMB1723	SAFETY SPRING (S)	1	
119(1)		VMB1824	SPRING (S)	1	
200(2)		VDL0170	IR CUT FILTER	1	
201(2)		VMP1790	AWT FIXING ANGLE	1	
202(2)		VMP1810	AWT HOOK SPRING	1	
203(2)		VWJ0341	AWT FLEXIBLE CORD	1	FP601 - FP302
204(2)		VGQ1660	IR SPACER	1	
205(2)		VXA3672	HI-FI AUDIO BARRIER	1	
			UNIT		
206(2)		VHD0398	SENSOR SCREW	2	
207(2)		VMP2064	CAMERA FIXING ANGLE	1	
208(2)		VSC3016	SENSOR FRAME SHIELD PLATE	1	NV-MC30/E/B/EP/EW
208(2)		VSC3027	SENSOR FRAME SHIELD PLATE	1	NV-MC30EG
209(2)		VWJ0305	PROCESS FLEXIBLE CORD	1	FP306 - P1002
210(2)		VJF0654	SENSOR FRAME	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
211(2)		VMD1256	SENSOR C.B.A. FRAME	1	
212(2)		VXW0027	LENS UNIT	1	
213(2)		VDW0088	FOCUS RING	1	
214(2)		VEM0318	FOCUS MOTOR UNIT	1	
215(2)		VEM0319	ZOOM MOTOR UNIT	1	
216(2)		VGF0247	FOCUS FASTENER	1	
217(2)		VJF0661	POSITION SENSOR	1	
			HOLDER		
218(2)		VXL1635	IRIS UNIT	1	
219(2)		VXQ0057	LENS (1) UMIT	1	
220(2)		VXP1118	LENS (2) UNIT	1	
221(2)		VDL0143	CHRYSTAL FILTER	1	
222(2)		VMX1276	CCD CUSHION	1	
223(2)		VXQ0017	ACTUATER	1	
224(2)		VEK4539	CCD UNIT	1	
225(2)		MN3745F	CCD	1	
226(2)		VMA7183	CCD PLATE	1	
227(2)		VWJ0340	CCD FLEXIBLE CORD	1	
300(3)		VHD0439	SCREW (A)	2	
301(3)		VMD1268	SPACER	1	
302(3)		VSC2608	VIDEO HEAD AMP SHIELD	1	
			(UPPER)		
303(3)		VHD0451	SCREW	1	
304(3)		VHD0395	SCREW	1	
305(3)		VMX1332	SCREW SPACER	1	
306(3)		VYK2701	SIDE CASE (R) UNIT	1	
307(3)		VMP1793	SUPPORT ANGLE	1	
308(3)		VML2156	SAFETY LEVER	1	
309(3)		VMB1848	SAFETY SPRING	1	
310(3)		VYK2514	TOP CASE UNIT	1	
311(3)		VMC0400	E.V.F. SHOE SPRING	1	
312(3)		VMP2063	E.V.F. SHOE	1	
313(3)		VYP2893	CASSETTE COVER UNIT	1	
314(3)		VKW1144	LENS COVER	1	
315(3)		VKF1142	BATTERY LID	1	
316(3)		VHD0437	SCREW	1	
317(3)		VDW0089	LENS FOOD	1	
318(3)		VYK2710	SIDE CASE (L) UNIT	1	
319(3)		VGH2002	BATTERY NAME PLATE	1	
320(3)		VGQ1611	E.V.F. CORD HOLDER	1	
321(3)		VMP1789	FIXING ANGLE (B)	1	
322(3)		VMP1894	FIXING ANGLE (A)	1	
323(3)		VMP2043	SHOE FIXING ANGLE	1	
324(3)		VMP2160	BELT SUPPORT ANGLE	1	
325(3)		VMP1989	SHOULDER STRAP ANGLE	1	
			(UPPER)		
326(3)		VMD1344	TRIPOD FIXING BRACKET	1	
327(3)		VMP1355	SHOULDER STRAP ANGLE	1	
			(LOWER)		
328(3)		VKC0347	BATTERY LOCK HINGE	1	
329(3)		VMP1787	GRIP BELT ANGLE	1	
330(3)		VMB1847	BATTERY LOCK SPRING (A)	1	
331(3)		VMB1861	BATTERY LOCK SPRING (B)	1	
332(3)		VGU4388	BATTERY LOCK KNOB	1	
333(3)		VGQ1590	BATTERY LOCK HOLDER	1	
334(3)		VGQ1591	BATTERY LOCK	1	
335(3)		VGQ1592	ZOOM BUTTON HOLDER	1	
336(3)		VGU4389	ZOOM BUTTON	1	
337(3)		VMG0358	ZOOM RUBBER SWITCH	2	
338(3)		VGQ1750	ZOOM BUTTON SHEET	1	
339(3)		VYK2318	BATTERY TERMINAL UNIT	1	
340(3)		VMC0403	BATTERY TERMINAL PLATE	1	
341(3)		VGQ1608	BATTERY TERMINAL HOLDER	1	
342(3)		VYK2520	GRIP BELT HOOK COVER UNIT	1	
343(3)		VMZ1348	SHIELD BARRIER	1	
344(3)		VEK4519	MIC UNIT	1	
345(3)		VGQ1610	GRIP BELT SUPPORT ANGLE	1	
346(3)		VYC0283	GRIP BELT UNIT	1	
347(3)		VGQ1349	HOOD STRAP	1	
348(3)		VKF1196	HOOD CAP	1	
349(3)		VMC0241	MIC SHOE SPRING	1	
350(3)		VMP1079	MIC SHOE	1	
351(3)		VMP1833	MIC SHOE ANGLE	1	
352(3)		VGQ1932	SUB REC BUTTON HOLDER	1	
356(3)		VHD0440	MAIN SCREW	2	
357(3)		VWJ0351	SUB OPERATION FLEXIBLE CORD	1	P6401 - P6303
358(3)		VMP1812	JACK FIXING ANGLE	1	
359(3)		VGQ1593	JACK HOLDER	1	
360(3)		VYK2678	VTR OPERATION CASE UNIT	1	
361(3)		VGU4692	VTR OPERATION BUTTON	1	
362(3)		VKM1894	VTR OPERATION CASE	1	
363(3)		VGH2216	VTR OPERATION PANEL	1	
364(3)		VGU4611	EJECT BUTTON	1	
365(3)		VGU4612	POWER SWITCH KNOB	1	
366(3)		VGU4613	SELECT KNOB	1	
367(3)		VMB1993	POWER SWITCH SPRING	1	
368(3)		VGL0390	PANEL LIGHT	3	
369(3)		VJR0522	CONTACT PIECE	2	
370(3)		VMZ1371	SHIELD PLATE B	1	
371(3)		VJF0724	SPRING STOPPER	1	
372(3)		VKF1300	CURSOR	1	
373(3)		VGQ1607	CAMERA OPERATION HOLDER	1	
374(3)		VGU4782	SLIDE KNOB	2	
375(3)		VGU4783	CAMERA OPERATION BUTTON	1	
			HINGE		
376(3)		VGU4916	IRIS ADJUSTMENT KNOB	1	
377(3)		VMZ1483	CAMERA OPERATION BARRIER	1	
378(3)		VKM1549	BATTERY BRACKET	1	
379(3)		VMC0399	BATTERY TERMINAL (B)	1	
380(3)		VMC0326	BATTERY TERMINAL (A)	1	
381(3)		VHD0494	LENS UNIT SCREW	1	
382(3)		VWJ05SW110LL	FLEXIBLE CORD	1	FP001 - P6003
383(3)		VWJ0350	FLEXIBLE CORD	1	P5502 - P4503
384(3)		VWJ0349	FLEXIBLE CORD	1	P4005 - P4502
400(4)		VGL0359	PANEL LIGHT	1	
401(4)		VKM1788	E.V.F BOTTOM CASE	1	
402(4)		VGQ1693	E.V.F FOOT	1	
403(4)		VGU4395	LOCK RELEASE KNOB	1	
404(4)		VMC0405	SPRING (B)	1	
405(4)		VGQ1596	LOCK FIXING PLATE	1	
406(4)		VKC0323	ROTALY PIECE	1	
407(4)		VKC0355	ROTALY HOLDER (A)	1	
408(4)		VKC0356	ROTALY HOLDER (B)	1	
409(4)		VMP1358	STEEL BALL	2	
410(4)		VMC0337	SPRING	2	
411(4)		VYK2526	TOP CASE UNIT	1	NV-MC30B
411(4)		VYK2527	TOP CASE UNIT	1	NV-MC30E/EG/EP/EW
412(4)		VKM1080	EYESIGHT CORRECTION CASE	1	
413(4)		VGU3946	EYESIGHT CORRECTION	1	
			RING		
414(4)		VMX1322	O RING	1	
415(4)		VJF0512	EYE CAP HOLDER	1	
416(4)		VMG0532	EYE CAP	1	
417(4)		VDL0145	E.V.F. LENS	1	
418(4)		VJF0511	LENS HOLDER	1	
419(4)		VEK3941	10P CORD	1	
420(4)		VEE4784	CRT SOKET UNIT	1	
421(4)		ELY07V570A	DY	1	
422(4)		M01JVV47WB	CRT	1	
423(4)		VGF0300	CRT MASKING	1	
424(4)		VJF0657	CRT HOLDER	1	
425(4)		VMX1462	CRT RUBBER	1	
500(5)		VQT3330	OPERATING INSTRUCTIONS	1	<!> NV-MC30B
			(ENGLISH)		
500(5)		VQT3327	OPERATING INSTRUCTIONS	1	<!> NV-MC30EP
			(ENGLISH,GARMAN,FRENCH)		
500(5)		VQT3328	OPERATING INSTRUCTIONS	1	<!> NV-MC30EP
			(SPANISH,DUTCH,ITALIAN)		
501(5)		VPG4905	PACKING	1	NV-MC30B
501(5)		VPG4907	PACKING	1	NV-MC30EP
502(5)		VPN1994	CUSHION (R)	1	NV-MC30EP/B
503(5)		VPN1995	CUSHION (L)	1	NV-MC30EP/B
505(5)		VPK1117	ACCESSORIES BOX	1	NV-MC30B
505(5)		VPK1118	ACCESSORIES BOX	1	NV-MC30EP
506(5)		VFA0078	AV OUTPUT CORD	1	NV-MC30EP/B
508(5)		VFC0472	SHOULDER STRAP	1	NV-MC30EP/B
509(5)		XEH1A1	EARPHONE	1	NV-MC30EP/B
511(5)		VJA0401	DC OUTPUT CORD	1	NV-MC30EP/B
512(5)		VYC0096	KEY	1	NV-MC30EP/B
513(5)		VXQ0050	CASSETTE ADAPTOR	1	NV-MC30EP/B

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
514(5)		VJA0376	RF CABLE	1	NV-MC30B
550(6)		VQT3327	OPERATING INSTRUCTIONS	1	<!> NV-MC30E/EG/EW
			(ENGLISH,GERMAN,FRENCH)		
550(6)		VQT3328	OPERATING INSTRUCTIONS	1	<!> NV-MC30E/EW
			(SPANISH, DUTCH,ITALIAN)		
550(6)		VQT3329	OPERATING INSTRUCTIONS	1	<!> NV-MC30E
			(SWEDISH,DANISH,FINNISH)		
551(6)		VPG4904	PACKING	1	NV-MC30E
551(6)		VPG4906	PACKING	1	NV-MC30EG
551(6)		VPG4908	PACKING	1	NV-MC30EW
552(6)		VPN2290	CUSHION (UPPER)		NV-MC30E/EG/EW
553(6)		VPN2291	CUSHION (LOWER)		NV-MC30E/EG/EW
554(6)		VPN2399	ACCESSORIES BOX	1	NV-MC30E/EG/EW
555(6)		VPN1997	PAD(A)	1	NV-MC30E/EG/EW
556(6)		VFA0078	AV OUTPUT CORD	1	NV-MC30E/EG/EW
557(6)		VFC0472	SHOULDER STRAP	1	NV-MC30E/EG/EW
558(6)		XEH1A1	EARPHONE	1	NV-MC30E/EG/EW
560(6)		VJA0401	DC OUTPUT CORD	1	NV-MC30E/EG/EW
562(6)		VPN2483	TOP PAD	1	NV-MC30E/EG/EW
563(6)		VXQ0050	CASSETTE ADAPTOR	1	NV-MC30E/EG/EW
			JIG & TOOLS		
		VFM8180H8PF	VHS-C ALIGNMENT TAPE	1	
		VFK0304	Y/C SEPARATOR	1	
		VFK0382	CAMERA HPLDER	1	
		VFK0431	CAMERA HOLDER ARM	1	
		VFK0432	HOLDER SPACER	1	
		XSN26+18	SCREW	2	
		VFK0546	HUNTING & GRAY/WHITE CHART	1	
		VFK0374	COLOUR TEMP. CONV. FILTER	1	(C12)
		VFK0375	COLOUR TEMP. CONV. FILTER	1	(C 2)
		VFK0547	COLOUR TEMP. CONV. FILTER	1	(C 8)
		VMX1304	CLEARANCE SPACER	1	
		VMS3504	ALIGNMENT SHAFT	1	
		VKW1049	DIFFUSION PLATE	1	
		VFKS0051	EXTENSION CABLE (3P)	1	
		VFKS0052	EXTENSION CABLE (5P)	1	
		VFK0430	EXTENSION CABLE (14P)	1	
		VFK0503	EXTENSION CABLE (5P)	1	
		VFK0380	EXTENSION CABLE (18P)	1	
		VFK0497	EXTENSION CABLE (6P)	1	
		VFKS0067	EXTENSION CABLE (22P)	1	
		VFKS0075	EXTENSION CABLE (16P)	1	
		VFKS0060	EXTENSION CABLE (2P)	1	
		VFK0499	EXTENSION CABLE (3P)	1	
		VFKS0074	CONNECTOR	1	
		VFK0335	RETAINING RING REMOVER	1	
		VFK0329	POST ADJUSTMENT SCREWDRIVER	1	
		VFK0343	CHECK LIGHT	1	
		VFK0326	HEX WRENCH SET	1	
		VFK27	HEAD CLEANING STICK	1	
		MOR265	MORLYTONE GREASE	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks

4-3. ELECTRICAL REPLACEMENT PARTS LIST

Note: 1.* Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components, use only the same type.
3. Unless otherwise specified,
All resistors are in OHMS ,K=1,000 OHMS. All capacitors are in MICROFARADS(uf),P=uuF.
4. The P.C.Board units marked width'■'show below the main assembled parts.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			---CAMERA SECTION---		
		VEP22083A	AWT(3) C.B.A.	1	(NLA)
		VEP22082A	SENSOR C.B.A.	1	(NLA)NV-MC30E,B,EP,EW
		VEP22082C	SENSOR C.B.A.	1	(NLA)NV-MC30EG
		VEP23089A	PROCESS C.B.A.	1	(NLA)
		VEP28018H	AUTO FOCUS C.B.A.	1	(NLA)
		VEP20285A	CAMERA OPERATION C.B.A.	1	(NLA)NV-MC30E,B,EP,EW
		VEP20285B	CAMERA OPERATION C.B.A.	1	(NLA)NV-MC30EG
		VEP30038A	FOCUS & ZOOM POSITION SENSOR C.B.A.	1	(NLA)
			---E.V.F. SECTION---		
		VEP27038C	E.V.F. C.B.A.	1	(NLA)
			---VTR SECTION---		
		VEP02318A	MOTOR DRIVE C.B.A.	1	(NLA)
		VEP05132D	VIDEO HEAD AMP C.B.A.	1	(NLA)
		VEP05133B	Hi-Fi AUDIO HEAD AMP C.B.A.	1	(NLA)
		VEP06572B	MAIN C.B.A.	1	(NLA)<!>
		VEP03617B	LUMINANCE/CHROMINANCE C.B.A.	1	(NLA) INCLUDING THE PAL JOG C.B.A. (VEP03616A)
		VEP03616A	PAL JOG C.B.A.	1	(NLA)
		VEP04276A	Hi-Fi AUDIO C.B.A.	1	(NLA)
		VEP06515D	OPERATION C.B.A.	1	(NLA)
		VEK4033	SUB OPERATION C.B.A.	1	(NLA)
		VEK3971	ZOOM SW C.B.A.	1	(NLA)
		VEK3970	START/STOP SW C.B.A.	1	(NLA)

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VEK3976	EARPHONE JACK C.B.A.	1	(NLA)
		VEK3455	TAKE-UP REEL SENSOR C.B.A.	1	(NLA)
	■	VEP22083A	AWT (3) C.B.A.		(NLA)
			CAPACITORS		
C601-03		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	3	
			CONNECTOR		
FP601		VJS2110	CONNECTOR (FEMALE)	1	
			ICS		
IC601		M51096AU	IC	1	
IC602		AN1358S	IC	1	
			RESISTORS		
R601		ERJ6GEYF123	M.RESISTOR CH1/10W 12K	1	
R602		ERJ6GEYF822	M.RESISTOR CH1/10W 8.2K	1	
R603		ERJ6GEYF124	M.RESISTOR CH1/10W 120K	1	
R604		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R605		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R606,07		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R608		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R609		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R610		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
	■	VEP22082A	SENSOR C.B.A.		(NLA)NV-MC30E/B/EP/EW
	■	VEP22082C	SENSOR C.B.A.		(NLA)NV-MC30EG
B201		VJP1948	CONNECTOR (MALE)	1	
			CAPACITORS		
C201		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C202,03		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	2	
C204		ECUM1H390JCV	C.CAPACITOR CH 50V 39P	1	
C206		ECRJA010A12	TRIMER	1	
C207		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C208		ECEV0JA220	E.CAPACITOR 6.3V 22U	1	
C209		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C210		ECEV1HA010	E.CAPACITOR 50V 1U	1	
C211		ECUM1E104ZFM	C.CAPACITOR CH 25V 0.1U	1	
C212		ECEA1EKS100I	E.CAPACITOR 25V 10U	1	
C213		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C214		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C215,16		ECUM1H270JCV	C.CAPACITOR CH 50V 27P	2	
C218,19		ECUM1H270JCV	C.CAPACITOR CH 50V 27P	2	
C220		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C221,22		ECUM1H270JCV	C.CAPACITOR CH 50V 27P	2	
C223		ECUM1H682ZFV	C.CAPACITOR CH 50V 6800P	1	
C225		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C226		ECEA1EKS100I	E.CAPACITOR 25V 10U	1	
C229		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C230-33		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	4	
C236		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	1	
C237		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C238-40		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	3	
C241		ECUM1H101JCV	C.CAPACITOR CH 50V 100P	1	
C242,43		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C244		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C245		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C246		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	1	
C247		ECEV1CA100	E.CAPACITOR 16V 10U	1	
C248-50		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	3	
C251		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	
C252,53		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C255		ECEV1CA100	E.CAPACITOR 16V 10U	1	
C260,61		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C262,63		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C280		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C281		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C282,83		ECUM1H180JCV	C.CAPACITOR CH 50V 18P	2	
C284		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C285		ECUM1H180JCV	C.CAPACITOR CH 50V 18P	1	
			DIODES		
D202		MA728	DIODE	1	
D204,05		MA110	DIODE	2	
D207		MA110	DIODE	1	
D209		MA141WK	DIODE	1	
D210-13		MA110	DIODE	4	
			FILTER		
FL201		ELB5B010	FILTER	1	
			CONNECTOR		
FP201		VJS2143	CONNECTOR (FEMALE)	1	
			ICS		
IC201		MN53015XBX	IC	1	
IC202		UPD6147G	IC	1	
IC203		AN2012S	IC	1	
			COILS		
L201		ELJFA150KF	COIL	1	
L203-07		ELJFA150KF	COIL	5	
L210-14		VLQ0291	COIL	5	
			TRANSISTORS		
Q201-03		2SD1819	TRANSISTOR	3	
Q204		2SC3930	TRANSISTOR	1	
Q205		2SA1610	TRANSISTOR	1	
Q206		2SC4176	TRANSISTOR	1	
Q207		2SA1610	TRANSISTOR	1	
Q208		2SC4176	TRANSISTOR	1	
Q209		2SA1610	TRANSISTOR	1	
Q210		2SC4176	TRANSISTOR	1	
			RESISTORS		
R201		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R202		ERJ3GEYJ151	M.RESISTOR CH1/20W 150	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R203		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R204		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R205		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R206		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R207		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R208		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R209		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R210,11		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	2	
R212		ERJ3GEYJ330	M.RESISTOR CH1/20W 33	1	
R216		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R217		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R218		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R221		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R222		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R223,24		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	2	
R225,26		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R227		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R228		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R229		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R230		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R231		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R232,33		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	2	
R234		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R235		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R236		ERJ3GEYJ270	M.RESISTOR CH1/20W 27	1	
R240		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R270		ERJ8GCYJ330	M.RESISTOR CH 1/8W 33	1	
			V.RESISTORS		
VR201		EVM7JSX30B25	V.RESISTOR 200K	1	
VR202		EVM7JSX30B54	V.RESISTOR 50K	1	
X201		VSX0240	CRYSTAL OSCILLATOR	1	
	■	VEP23089E	PROCESS C.B.A.		(NLA)
			CONNECTOR		
B301		VJS1948	CONNECTOR	1	
B305		VJS2574	CONNECTOR (FEMALE)	1	
			CAPACITORS		
C301		ECUM1H151JCV	C.CAPACITOR CH 50V 150P	1	
C303,04		ECST1CY105Z	T.CAPACITOR 16V 1U	2	
C305		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C306		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C307		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C308		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C309		ECUM1H680JCV	C.CAPACITOR CH 50V 68P	1	
C310		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C311		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C312		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C313		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C314		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C315		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C316,17		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C318,19		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C320,21		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	2	
C322		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C323		ECSF0JE226	T.CAPACITOR 6.3V 22U	1	
C324		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C325		ECEV1HA2R2	E.CAPACITOR 50V 2.2U	1	
C326		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C327		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C328,29		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C330		ECSF1AE226	T.CAPACITOR 10V 22U	1	
C331		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C332		ECEV1HA010	E.CAPACITOR 50V 1U	1	
C333		ECEV1HA3R3	E.CAPACITOR 50V 3.3U	1	
C334		ECUM1H101JCV	C.CAPACITOR CH 50V 100P	1	
C335		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C336,37		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C338,39		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	2	
C340,41		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C342		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C343		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C344		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C345		ECEV1CAN4R7R	E.CAPACITOR 16V 4.7U	1	
C346		ECST1AB475ZR	T.CAPACITOR 35V 4.7U	1	
C348		ECEV1CA100	E.CAPACITOR 16V 10U	1	
C349		ECUM1H221JCV	C.CAPACITOR CH 50V 220P	1	
C350		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C351		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C353		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	
C354		ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	1	
C355,56		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C357		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C358		ECSF1AE226	T.CAPACITOR 10V 22U	1	
C360		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C361		ECEA1CKS330	E.CAPACITOR 16V 33U	1	
C362		ECUM1H270JCV	C.CAPACITOR CH 50V 27P	1	
C363,64		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C365		ECSF0JE336	T.CAPACITOR 6.3V 33U	1	
C366		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C368		ECUM1H271JCV	C.CAPACITOR CH 50V 270P	1	
C369		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C371		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C372		ECEV0JA470	E.CAPACITOR 6.3V 47U	1	
C373		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C374-76		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	3	
C377		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C378		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C380		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	
C382		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C384		ECEA1EKS4R7I	E.CAPACITOR 25V 4.7U	1	
C385		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C386		ECEV1CA100	E.CAPACITOR 16V 10U	1	
C387-89		ECUM1H560JCV	C.CAPACITOR CH 50V 56P	3	
C393		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C395,96		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C398-00		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C401,02		ECUM1H151JCV	C.CAPACITOR CH 50V 150P	2	
C416		ECEA0GKS221	E.CAPACITOR 4V 220U	1	
C501		ECEV1AAN100	E.CAPACITOR 10V 10U	1	
C502,03		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C504		ECEV1AAN100	E.CAPACITOR 10V 10U	1	
C505,06		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	2	
C507		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
			DIODES		
D301		MA141A	DIODE	1	
D305		MA141A	DIODE	1	
D306		MA141WK	DIODE	1	
D307		MA728	DIODE	1	
D308		MA3047M	DIODE	1	
D309		MA110	DIODE	1	
D501		MA141WA	DIODE	1	
D502		MA728	DIODE	1	
			FILTERS		
FL301		ELB4D009	FILTER	1	
FL302		VLF0664	FILTER	1	
FL303		ELB4B003	FILTER	1	
FL304		ELB4C011	FILTER	1	
FL305		VLF0798	FILTER	1	
FL307		ELB4D010	FILTER	1	
FL308		ELB4B030	FILTER	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			CONNECTORS		
FP302		VJS2596	CONNECTOR (FEMALE)	1	
FP306		VJS2137	CONNECTOR	1	
			ICS		
IC302		MN3819S	IC	1	
IC303		MN3820S	IC	1	
IC304		AN2154FAP	IC	1	
IC308,09		LM2904M	IC	2	
IC310		AN2254FAP	IC	1	
IC311		MN5107	IC	1	
IC312		VCR0250	IC	1	
IC501		RZ4052BM	IC	1	
IC502		LM2902M	IC	1	
IC503		LM2904M	IC	1	
IC504,05		LM2902M	IC	2	
			COILS		
L301		VLQ0163K150	COIL 15UH	1	
L302		VLQ0319F150	COIL 15UH	1	
L303		VLQ0163K101	COIL 100UH	1	
L304-06		VLQ0163K150	COIL 15UH	3	
L307		VLQ0163K330	COIL 33UH	1	
L308,09		VLQ0163K150	COIL 15UH	2	
L310		VLQ0291	COIL	1	
L311		VLQ0163K150	COIL 15UH	1	
L312		VLQ0163K101	COIL 100UH	1	
L313		VLQ0163K330	COIL 33UH	1	
L316		VLQ0163K330	COIL 33UH	1	
			CONNECTORS		
P303		VJP1608T	CONNECTOR(MALE)	1	
P307		VJP1607T	CONNECTOR(MALE)	1	
P308,09		VJP2260	CONNECTOR(MALE)	2	
			TRANSISTORS		
Q301		2SD1819	TRANSISTOR	1	
Q302		2SC3931	TRANSISTOR	1	
Q303		2SB1218	TRANSISTOR	1	
Q304		2SA1532	TRANSISTOR	1	
Q305		XN4601	TRANSISTOR	1	
Q306		XN4401	TRANSISTOR	1	
Q308		XN4601	TRANSISTOR	1	
Q310		2SB1218	TRANSISTOR	1	
Q312		2SD1819	TRANSISTOR	1	
Q313		2SC3931	TRANSISTOR	1	
Q314		2SD1819	TRANSISTOR	1	
Q315		XN4401	TRANSISTOR	1	
Q317		2SD1819	TRANSISTOR	1	
Q320		XN4401	TRANSISTOR	1	
Q322		XN4608	TRANSISTOR	1	
Q324		2SA1532	TRANSISTOR	1	
Q328		XN4501	TRANSISTOR	1	
Q502		XN4401	TRANSISTOR	1	
Q503		XN4501	TRANSISTOR	1	
Q504		XN4401	TRANSISTOR	1	
Q505		XN4501	TRANSISTOR	1	
Q506		2SD874	TRANSISTOR	1	
Q507		2SB1219	TRANSISTOR	1	
Q508-10		XN4601	TRANSISTOR	3	
			RESISTORS		
R301		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R302		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R303		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R304		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R305		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R306		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R307		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R308		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R309		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R310		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R311,12		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	2	
R313		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R314		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R315		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R317		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R318		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R319		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R321		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R322		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R323		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R324		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R325,26		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	2	
R327		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R328		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R329		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R330		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R331		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R332		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R333		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R334		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R336		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R337		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R338		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R339		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R340		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R341		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R342		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R343		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R344		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R345		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R348		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R349		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R350		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R351		ERJ3GEYJ560	M.RESISTOR CH1/20W 56	1	
R352		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R353		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R354		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R355		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R357		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R358		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R359		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R360		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R361,62		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	2	
R363		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R364		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R365		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R366		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R367		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R368		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R369-71		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	3	
R374,75		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	2	
R376		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R377		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R378		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R379		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R380		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R381		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R382		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R383		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	1	
R385		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R386		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R387		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R388		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R389		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R390		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R394		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R396		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R397		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R398		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R399		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R400		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R401		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R402,03		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R404		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R405		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R406		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R408		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R409		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R410		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R411		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R412		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R413		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R414		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R415		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R416		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R417		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R418		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R419		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R426		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R427		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R428		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R429		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R431		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R432		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	1	
R433		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R434		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R435		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R436		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R437,38		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R439		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R440		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R442		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R443,44		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	2	
R445-47		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	3	
R448		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R449		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R450		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R451		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R452		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R453		ERJ3GEYJ564	M.RESISTOR CH1/20W 560K	1	
R456,57		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	2	
R458		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R459		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R460		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R461		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R462		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R463		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R465		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R468		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R501,02		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	2	
R503,04		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R505		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R506,07		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R508		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R509		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R510		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R511		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R512,13		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R514,15		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R516		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R517		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R518		ERJ3GEK106	M.RESISTOR CH 3W 10M	1	
R519		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R520		ERJ3GEYJ274	M.RESISTOR CH1/20W 270K	1	
R521		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R522		ERJ3GEK335	M.RESISTOR CH 3W 3.3M	1	
R523		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R524		ERJ3GEYJ564	M.RESISTOR CH1/20W 560K	1	
R525		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R526		ERJ3GEK106	M.RESISTOR CH 3W 10M	1	
R527		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R528		ERJ3GEYJ274	M.RESISTOR CH1/20W 270K	1	
R529		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R530		ERJ3GEK335	M.RESISTOR CH 3W 3.3M	1	
R531		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R532		ERJ3GEYJ564	M.RESISTOR CH1/20W 560K	1	
R533		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R534-36		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	3	
R537		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R538		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R539		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R540,41		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R542		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R543		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R544-53		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	10	
R554-56		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	3	
R557		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R558		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R559		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R560		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R561,62		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R563,64		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	2	
R565		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R569-71		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	3	
R572		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R574,75		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R576		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R577-79		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	3	
R580		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R581		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R582		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R583		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R584		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R585		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
TH301		VRT0019	THERMISTOR	1	
			VARIABLE RESISTORS		
VR301		EVM7JSX30B14	V.RESISTOR 10K	1	
VR303		EVM7JSX30B24	V.RESISTOR 20K	1	
VR304		EVM7JSX30B54	V.RESISTOR 50K	1	
VR305-07		EVM7JSX30B24	V.RESISTOR 20K	3	
VR309,10		EVM7JSX30B24	V.RESISTOR 20K	2	
VR311,12		EVM7JSX30B14	V.RESISTOR 10K	2	
VR313-15		EVM7JSX30B13	V.RESISTOR 1K	3	
VR317-20		EVM7JSX30B53	V.RESISTOR 5K	4	
VR322		EVM7JSX30B54	V.RESISTOR 50K	1	
VR324		EVM7JSX30B14	V.RESISTOR 10K	1	
VR327		EVM7JSX30B14	V.RESISTOR 10K	1	
VR328		EVM7JSX30B24	V.RESISTOR 20K	1	
VR329		EVM7JSX30B14	V.RESISTOR 10K	1	
VR523		EVM7JSX30B54	V.RESISTOR 50K	1	
VR525,26		EVM7JSX30B24	V.RESISTOR 20K	2	
VR527		EVM7JSX30B54	V.RESISTOR 50K	1	
VR528,29		EVM7JSX30B14	V.RESISTOR 10K	2	
VR530,31		EVM7JSX30B54	V.RESISTOR 50K	2	
	■	VEP28018H	AUTO FOCUS C.B.A.		(NLA)
			CONNECTOR		
B701		VJP2574	CONNECTOR (MALE)	1	
			CAPACITORS		
C701		ECEA0JU471	E.CAPACITOR 6.3V 470U	1	
C702		ECUM1H270JCV	C.CAPACITOR CH 50V 27P	1	
C703		ECRJA020E12	TRIMER	1	
C706		ECUM1H101JCV	C.CAPACITOR CH 50V 100P	1	
C710,11		ECUM1E473KB	C.CAPACITOR CH 25V 0.047U	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C712		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C713		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C714		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C715		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C716-19		ECEA1CKS100	E.CAPACITOR 16V 10U	4	
C720		ECEA0JSN220	E.CAPACITOR 6.3V 22U	1	
C721		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C722-24		ECUM1E273KBN	C.CAPACITOR CH 25V 0.027U	3	
C725		ECUM1E683ZFN	C.CAPACITOR CH 25V 0.063U	1	
C726		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C727-29		ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	3	
C730		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	
C731		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C732-35		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	4	
C736		ECUM1H221KBV	C.CAPACITOR CH 50V 220P	1	
C737		ECRJA020E12	TRIMER	1	
C738,39		ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	2	
C740,41		ECEA1CKS100	E.CAPACITOR 16V 10U	2	
C742		ECEA1HSN010	E.CAPACITOR 50V 1U	1	
C743		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C744,45		ECEA0JKS470	E.CAPACITOR 6.3V 47U	2	
C746		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C747		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C748		ECEA1CU100	E.CAPACITOR 16V 10U	1	
C749,50		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C755		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
			DIODES		
D701,02		MA141A	DIODE	2	
D703,04		1SS250	DIODE	2	
			FILTERS		
FL701		ELB4B004	FILTER	1	
FL702		VLF0595	FILTER	1	
FL703		ELB4B005	FILTER	1	
FL704		ELB4D001	FILTER	1	
FL705		VLF0596	FILTER	1	
			ICS		
IC701		MN15867VNY	IC	1	
IC702		AN2584NFAP	IC	1	
IC703		NJM4558MP	IC	1	
IC704		AN78N05	IC	1	
IC705		NJM3415M	IC	1	
IC706		AN6663SP	IC	1	
			COILS		
L701		VLQ0300J560	COIL 56UH	1	
L702		VLQEL05F101K	COIL 100UH	1	
L703		VLQEL05F330K	COIL 33UH	1	
L704		VLQEL05F150K	COIL 15UH	1	
			CONNECTORS		
P701		VJP1599T	CONNECTOR(MALE) 6P	1	
P703		VJP1599T	CONNECTOR(MALE) 6P	1	
P704		VJP1596T	CONNECTOR(MALE) 3P	1	
P705		VJP1603T	CONNECTOR(MALE) 10P	1	
			TRANSISTORS		
Q701,02		UN2211	TRANSISTOR-RESISTOR	2	
Q703		2SB710	TRANSISTOR CHIP	1	
Q704		2SA1255	TRANSISTOR	1	
Q705		2SC3138	TRANSISTOR	1	
Q706,07		2SD1819	TRANSISTOR	2	
Q710		XN1212	TRANSISTOR	1	
Q711		XN4501	TRANSISTOR	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			RESISTORS		
R701		ERJ3GEYJ220	M.RESISTOR CH1/20W 22	1	
R702,03		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	2	
R704-06		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	3	
R707,08		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	2	
R709		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R710-13		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	4	
R715,16		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R717		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R718		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R720		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R721		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R722		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R723		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R724,25		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	2	
R726		ERJ3GEYJ124	M.RESISTOR CH1/20W 120K	1	
R727		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R728		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R729		ERJ3GEYJ394	M.RESISTOR CH1/20W 390K	1	
R730		ERJ3GEYJ474	M.RESISTOR CH1/20W 470K	1	
R731		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R732		ERJ3GEG822	M.RESISTOR CH 3W 8.2K	1	
R733		ERJ3GEG472	M.RESISTOR CH 3W 4.7K	1	
R734-38		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	5	
R739		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R740		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R741		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R742		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R743		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R744		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R745		ERJ3GEYJ100	M.RESISTOR CH1/20W 10	1	
R746		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R747		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R748,49		ERJ3GEYJ274	M.RESISTOR CH1/20W 270K	2	
R750		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R751		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R752		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R759		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R760		ERJ6GEYJ470	M.RESISTOR CH 1/10W 47	1	
			TRANSFORMAR		
T701		ETE13K43AY	TRANSFORMAR	1	
VR701		EVML1GA00B53	V.RESISTOR 5K	1	
VR702		EVML1GA00B15	V.RESISTOR 100K	1	
VR703		EVM7JSX30B14	V.RESISTOR 10K	1	
X701		VSX0299	CRYSTAL OSCILLATOR	1	
			MISCELLANEOUS		
		VSC2318	SHIELD BOX	1	(FOR AUTO FOCUS)
		VSC2719	SHIELD BOX	1	(FOR COIL)
	■	VEP20285A	CAMERA OPERATION C.B.A.		(NLA)NV-MC30E/B/EP/EW
	■	VEP20285B	CAMERA OPERATION C.B.A.		(NLA)NV-MC30EG
			CAPACITORS		
C001,02		ECEA0JKS470	E.CAPACITOR 6.3V 47U	2	
			DIODE		
D001,02		MA151K	DIODE	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			CONNECTOR		
FP001		VJS2596	CONNECTOR (FEMALE)	1	
			CONNECTORS		
P001		VJP1614T	CONNECTOR(MALE)	1	
P002		VJP1606T	CONNECTOR(MALE)	1	
			TRANSISTORS		
Q001		2SD601	TRANSISTOR CHIP	1	
Q002		2SB709	TRANSISTOR CHIP	1	
Q003		2SD601	TRANSISTOR CHIP	1	
			RESISTORS		
R003		ERJ6GMYJ183	M.RESISTOR CH 1/10W 18K	1	
R004		ERJ6GMYJ124	M.RESISTOR CH1/10W 120K	1	
R005		ERJ6GMYJ154	M.RESISTOR CH1/10W 150K	1	
R006		ERJ6GMY0R00	M.RESISTOR CH 1/10W	1	
R007		ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R008		ERJ6GMYJ822	M.RESISTOR CH 1/10W 8.2K	1	
R031		ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R032		ERJ6GMYJ394	M.RESISTOR CH1/10W 390K	1	
R033		ERJ6GMYJ153V	M.RESISTOR CH 1/10W 15K	1	
R034		ERJ6GMYJ333	M.RESISTOR CH1/10W 33K	1	
R035		ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R036		ERJ6GMYJ153V	M.RESISTOR CH 1/10W 15K	1	
R037		ERJ6GMYJ393	M.RESISTOR CH 1/10W 39K	1	
			SWITCHES		
SW002-05		EVQQSU04W	SWITCH	4	
SW006		VSS0220	SWITCH	1	
SW007		VSS0236	SWITCH	1	
			VARIABLE RESISTOR		
VR001		EVLH1AA00A54	V.RESISTOR 50K	1	(EXCEPT:NV-MC30B)
	■	VEP30038A	CAMERA OPERATION		(NLA)
		ERDS2TJ891T	RESISTOR 390	1	
		ON2170	PHOTO INTERRUPTER	1	
		VJP1610T	CONNECTOR 6P	1	
	■	VEP27038C	E.V.F. C.B.A.		(NLA)
			CAPACITORS		
C901		ECEA1CKE101	E.CAPACITOR 16V 100U	1	
C902		ECSE1CY684V	T.CAPACITOR 16V 0.68U	1	
C903		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C904		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C905		ECEA1CKE101	E.CAPACITOR 16V 100U	1	
C906		ECUM1H681JCN	C.CAPACITOR CH 50V 680P	1	
C907		ECUM1C2242FN	C.CAPACITOR CH 16V 0.22U	1	
C908		ECUM1E223KBN	C.CAPACITOR CH 25V 0.023U	1	
C909		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C910		ECUM1H152JP	C.CAPACITOR CH 50V 1500P	1	
C911		ECEA1CKS100	E.CAPACITOR 16V 10U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C912		ECEA1AF470	E.CAPACITOR 10V 47U	1	
C913		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C914		ECQK1392JZ	P.CAPACITOR 100V 3900P	1	
C915		ECEA1CKS220I	E.CAPACITOR 16V 22U	1	
C916		ECUM1H101JCN	C.CAPACITOR CH 50V 100P	1	
C917		ECEA1HKS4R7	E.CAPACITOR 50V 4.7U	1	
C918		VCK0075K121	C.CAPACITOR 120P	1	
C919		VCK0058K331	C.CAPACITOR 330P	1	
C920,21		ECUX1H473ZFN	C.CAPACITOR CH 50V 0.047U	2	
C922		ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
			DIODES		
D901		MA141K	DIODE	1	
D902		ERA91-02	DIODE	1	
D903		ERA34-10	DIODE	1	
D951		LN29CALU	DIODE	1	
			ICS		
IC901		AN2510S	IC	1	
			COILS		
L901		VLQ0321	COIL 320UH	1	
L902		ELH5L313D	COIL	1	
			CONNECTORS		
P901		VJP1600T	CONNECTOR	1	
P902		VJP1597T	CONNECTOR (MALE)	1	
P903		VJP1596T	CONNECTOR	1	
P904		VJP1229T	CONNECTOR (MALE)	1	
			TRANSISTORS		
Q901		2SB1218	TRANSISTOR	1	
Q902		2SD968A	TRANSISTOR	1	
Q903		2SA1532	TRANSISTOR	1	
			RESISTORS		
R901		ERJ3GEYK6R8	M.RESISTOR CH1/20W 6.8	1	
R902		ERJ6GEYG682	M.REISITOR CH 1/10W 6.8K	1	
R903		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R904		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R905		ERJ3GEK4R7	M.RESISTOR CH 3W 4.7	1	
R906		ERJ3GEJ150	M.RESISTOR CH 3W 15	1	
R907		ERJ3GEYJ151	M.RESISTOR CH1/20W 150	1	
R908		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R909		ERJ3GEYJ163	M.RESISTOR CH1/20W 16K	1	
R910		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R911		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R912		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	1	
R913		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R914		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R915,16		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R917		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R918		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R919		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R920		ERJ3GEYJ274	M.RESISTOR CH1/20W 270K	1	
R921		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R922		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R923		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R924		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R926		ERJ6GEYJ105	M.RESISTOR CH 1/10W 1M	1	
R927		ERJ6GEYK125	M.RESISTOR CH 1/10W 1.2M	1	
R928		ERJ6GEYK335	M.RESISTOR CH 1/10W 3.3M	1	
R929		ERJ6GEYK125	M.RESISTOR CH 1/10W 1.2M	1	
R931		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R933		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R934		ERJ3GEK1R5	M.RESISTOR CH 3W 1.5	1	
R951		ERJ6GEYJ151	M.RESISTOR CH 1/10W 150	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
T901		ETF14L34A	TRANSFORMER	1	
TH901		VRT0012	THERMISTER	1	
			VARIABLE RESISTOR		
VR901		EVM7JSX30BE2	V.RESISTOR	1	
VR902		EVM7JSX30B53	V.RESISTOR 5K	1	
VR904		VRV0040B225	V.RESISTOR 2.2M	1	
VR905		VRV0040B105	V.RESISTOR 1M	1	
	■	VEP02318A	MOTOR DRIVE C.B.A.		(NLA)
			CAPACITORS		
C2601		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C2602-04		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C2605-07		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	3	
C2608		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2609		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2610		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C2611		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C2612,13		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C2614		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C2615		ECUM1H221JV	C.CAPACITOR CH 50V 220P	1	
C2616,17		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C2618		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C2619		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2620		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2621		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2622-24		ECUM1C333ZFV	C.CAPACITOR CH 16V 0.033U	3	
C2625-27		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	3	
C2628		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2630		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
			DIODES		
D2601		DAN202U	DIODE	1	
D2602		MA141K	DIODE	1	
			ICS		
IC2601		TA8402F	IC	1	
IC2602		AN3819FBS	IC	1	
IC2603		UN207	IC	1	
IC2604		ON2170LF	IC	1	
			CONNECTORS		
P2601		VJP2246	CONNECTOR	1	
P2602		VJS2582B015	CONNECTOR	1	
P2603		VJS2325	CONNECTOR	1	
P2604,05		VJP2271	CONNECTOR(MALE)	2	
			TRANSISTORS		
Q2601-03		2SB956	TRANSISTOR	3	(Q,R,S)
Q2604		2SD1819	TRANSISTOR	1	
			RESISTORS		
R2601-03		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	3	
R2604,05		ERJ8GCYJ1R8	M.RESISTOR CH 1/8W 1.8	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R2606		ERJ8GCYJ2R2	M.RESISTOR CH 1/8W 2.2	1	
R2607		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R2611		VRE0049	RESISTOR	1	
R2612		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R2613		ERJ3GEYJ274	M.RESISTOR CH1/20W 270K	1	
R2614		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R2615		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R2616		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R2617		ERJ3GEYJ121	M.RESISTOR CH1/20W 120	1	
R2618		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R2619,20		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R2621		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R2622		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
			BARRIER		
Z2601		VMZ1092	BARRIER	1	
			MISCELLANEOUS		
		VMD1275	REEL SENSOR HOLDER (S)	1	
	■	VEP05132D	VIDEO HEAD AMP C.B.A.		(NLA)
			CAPACITORS		
C5001		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5002		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5003		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5004		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5005		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5006		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5007		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5008		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5009		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C5010		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5011		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5012		ECUM1H470JCV	C.CAPACITOR CH 50V 47P	1	
C5013		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5014		ECUM1H470JCV	C.CAPACITOR CH 50V 47P	1	
C5015		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5016,17		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C5018		ECUM1H470JCV	C.CAPACITOR CH 50V 47P	1	
C5019		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5020		ECUM1H470JCV	C.CAPACITOR CH 50V 47P	1	
C5021		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5022,23		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C5024		ECUM1H470JCV	C.CAPACITOR CH 50V 47P	1	
C5026,27		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	2	
C5029		ECUM1H121JCV	C.CAPACITOR CH 50V 120P	1	
C5030		ECUM1H151JV	C.CAPACITOR CH 50V 150P	1	
C5031		ECUM1H390JCV	C.CAPACITOR CH 50V 39P	1	
C5032-35		ECUM1H223KBN	C.CAPACITOR CH 50V 0.022U	4	
C5036-39		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	4	
			IC		
IC5001		AN3311S	IC	1	
			COILS		
L5001		VLQEL04F101K	COIL 100UH	1	
L5003		VLQ0163J470	COIL 47UH	1	
L5004		VLQ0163K100	COIL 10UH	1	
L5005		VLQEL04F120K	COIL 12UH	1	
			CONNECTORS		
P5001		VJP2243	CONNECTOR(MALE)	1	
P5002		VJS2236T	CONNECTOR(FEMALE)	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
P5003		VJP2260	CONNECTOR(MALE)	1	
			TRANSISTORS		
Q5001		FMS1	TRANSISTOR-RESISTOR	1	
Q5002-05		2SD1328	TRANSISTOR CHIP	4	
Q5006		FMS1	TRANSISTOR-RESISTOR	1	
Q5007-10		2SD1328	TRANSISTOR CHIP	4	
Q5011		2SB1218	TRANSISTOR	1	
Q5012		2SA812	TRANSISTOR	1	
Q5013		2SA1175	TRANSISTOR	1	
			COMBINATION PARTS		
QR5001,02		FMG1	TRANSISTOR-RESISTOR	2	
QR5003		UN5217	TRANSISTOR-RESISTOR	1	
QR5004,05		FMA2	TRANSISTOR-RESISTOR	2	
			RESISTORS		
R5001		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5002		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5003		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5004-06		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	3	
R5007		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5008		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5009		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5010-12		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	3	
R5013		ERJ3GEYJ100	M.RESISTOR CH1/20W 10	1	
R5014		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5015		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5016		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5017-19		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	3	
R5020		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5021		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5022		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5023-25		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	3	
R5026		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R5027-30		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	4	
R5031		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R5032		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R5033,34		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R5035		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5037		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R5038		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R5039		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R5040		ERJ8GCYJ4R7	M.RESISTOR CH 1/8W 4.7	1	
R5041-44		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	4	
R5045-48		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	4	
R5049		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R5050		ERJ3GEYJ100	M.RESISTOR CH1/20W 10	1	
			MISCELLANEOUS		
		VSC2609	SHIELD CASE (BOTTOM)	1	
		VMZ1298	BARRIER	1	
	■	VEP05133B	Hi-Fi AUDIO HEAD AMP C.B.A.		(NLA)
			CAPACITORS		
C5501		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5502		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5503		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5504		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5505		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5506		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C5507		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5508		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5509		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C5510		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5512		ECUM1H182KBV	C.CAPACITOR CH 50V 1800P	1	
C5513		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5514		ECUM1H182KBV	C.CAPACITOR CH 50V 1800P	1	
C5515		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5518		ECUM1H182KBV	C.CAPACITOR CH 50V 1800P	1	
C5519		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5520		ECUM1H182KBV	C.CAPACITOR CH 50V 1800P	1	
C5521		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5526-29		ECUM1E223ZFV	C.CAPACITOR CH 25V 0.022U	4	
C5530-33		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	4	
			IC		
IC5501		AN3311S	IC	1	
			COIL		
L5501		VLQEL04F101K	COIL 100UH	1	
			CONNECTORS		
P5501		VJS2117	CONNECTOR	1	
P5502		VJS2118	CONNECTOR	1	
P5503		VJP2271	CONNECTOR(MALE)	1	
			TRANSISTORS		
Q5501		XN6401	TRANSISTOR-RESISTOR	1	
Q5502-05		2SD1328	TRANSISTOR CHIP	4	
Q5506		XN6401	TRANSISTOR-RESISTOR	1	
Q5507-10		2SD1328	TRANSISTOR CHIP	4	
			COMBINATION PARTS		
QR5501,02		FMG1	TRANSISTOR-RESISTOR	2	
QR5504,05		FMA2	TRANSISTOR-RESISTOR	2	
			RESISTORS		
R5501		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5502		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5503		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5504		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R5505		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R5506		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R5507		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5508		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5509		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5510		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R5511		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R5512		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R5513		ERJ3GEYJ100	M.RESISTOR CH1/20W 10	1	
R5514		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5515		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5516		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5517		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R5518		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R5519		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R5520		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5521		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5522		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5523		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R5524		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R5525,26		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R5531		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R5535		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5536,37		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	2	
R5538		ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R5539		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R5540-43		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	4	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			MISCELLANEOUS		
		VSC2605	SHIELD CASE	1	
		VMX1464	SHA SHIELD CASE SPACER	1	
	■	VEP06572B	MAIN C.B.A.		(NLA)
			CAPACITORS		
C1001		ECUM1H151JCN	C.CAPACITOR CH 50V 150P	1	
C1002		ECUM1H471KBV	C.CAPACITOR CH 50V 470P	1	
C1003		ECUM1H151JV	C.CAPACITOR CH 50V 150P	1	
C1004		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C1005		ECUM1C474ZFM	C.CAPACITOR CH 16V 0.47U	1	
C1006		ECUM1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C1008		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C1009		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C1010		ECEA1CU101	E.CAPACITOR 16V 100U	1	
C1011		ECEA1CU331	E.CAPACITOR 16V 330U	1	
C1012-14		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	3	
C1015		ECEA05KJ471	E.CAPACITOR 470U	1	
C1016		ECEA05KJ221	E.CAPACITOR 220U	1	
C1017		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C1019		ECSF1CE476	T.CAPACITOR 16V 47U	1	
C1020		ECEA05KJ221	E.CAPACITOR 220U	1	
C1021		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C1022		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C1023		ECEA1AKJ121	E.CAPACITOR 10V 120U	1	
C1024,25		ECEA1CKE101	E.CAPACITOR 16V 100U	2	
C1026		ECUM1H822KBV	C.CAPACITOR CH 50V 8200P	1	
C1027		ECUM1H682KBV	C.CAPACITOR CH 50V 0.068U	1	
C1030,31		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	2	
C1032		ECEA1ASE101	E.CAPACITOR 10V 100U	1	
C1033		ECSF1VE156	T.CAPACITOR 35V 15U	1	
C1034,35		ECEA1AKS330	E.CAPACITOR 10V 33U	2	
C1036		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C1037		ECST1EY474ZL	T.CAPACITOR 35V 0.47U	1	
C1038		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C2001,02		ECUM1H101JV	C.CAPACITOR CH 50V 100P	2	
C2003		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2004		ECUM1C473ZFV	C.CAPACITOR CH 16V 0.047U	1	
C2005,06		ECEA0JKS470	E.CAPACITOR 6.3V 47U	2	
C2007		ECUM1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C2008		ECUM1H101JV	C.CAPACITOR CH 50V 100P	1	
C2009,10		ECEA0JKS220	E.CAPACITOR 6.3V 22U	2	
C2011		ECUM1C473ZFV	C.CAPACITOR CH 16V 0.047U	1	
C2012		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C2013		ECUM1H471KBV	C.CAPACITOR CH 50V 470P	1	
C2014		ECEA1VSN2R2	E.CAPACITOR 35V 2.2U	1	
C2015,16		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C2017		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C2018		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C2019		ECEA1AKA330	E.CAPACITOR 10V 33U	1	
C2020		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C2021,22		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C2023		ECUM1C333ZFV	C.CAPACITOR CH 16V 0.033U	1	
C2024		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C2025,26		ECEA0JKA101	E.CAPACITOR 6.3V 100U	2	
C2027		ECUM1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C2028		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C2029		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C2030		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2031		ECUM1C474ZFM	C.CAPACITOR CH 16V 0.47U	1	
C2032		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2033		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C2034		ECUM1H101JV	C.CAPACITOR CH 50V 100P	1	
C2035		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C2036		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2037		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C2038,39		ECEA1AKS330	E.CAPACITOR 10V 33U	2	
C2040		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2041		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C2043		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C2044		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2045		ECQV1H393JZ	P.CAPACITOR 50V 0.039U	1	
C2046		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2047		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C2048,49		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	2	
C2050		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C2051		ECUM1C474ZFM	C.CAPACITOR CH 16V 0.47U	1	
C2053		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C2055		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C2056		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C2060		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3502		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C3506		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C3507		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3510,11		ECEA0JKA221	E.CAPACITOR 6.3V 220U	2	
C3512		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C3514		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C3515		ECEA1ASE101	E.CAPACITOR 10V 100U	1	
C3516,17		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C3518		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3519		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3522		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C3524		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C3525		ECEA1AKS330	E.CAPACITOR 10V 33U	1	
C3528		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3534		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C3535		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3536		ECEA1ASJ101	E.CAPACITOR 10V 100U	1	
C3537		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3538		ECEA1ASE101	E.CAPACITOR 10V 100U	1	
C4005		ECUM1H122KBV	C.CAPACITOR CH 50V 1200P	1	
C4007		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4008		ECEA1HSN010	E.CAPACITOR 50V 1U	1	
C4009		ECUM1H271KBV	C.CAPACITOR CH 50V 270P	1	
C4010		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4011		ECUM1H822KBN	C.CAPACITOR CH 50V 8200P	1	
C4012		ECUM1E333KBN	C.CAPACITOR CH 25V 0.033U	1	
C4013		ECUM1H151JV	C.CAPACITOR CH 50V 150P	1	
C4014		ECSF1VE105GD	T.CAPACITOR 35V 1U	1	
C4015		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C4016		ECEA1HKKR47	E.CAPACITOR 50V 0.47U	1	
C4017		ECEA1AKS330	E.CAPACITOR 10V 33U	1	
C4018		ECQP1562JZ	P.CAPACITOR 100V 5600P	1	
C4019		ECEA1CKS220	E.CAPACITOR 16V 22U	1	
C4020		ECUM1H391KBV	C.CAPACITOR CH 50V 390P	1	
C4021		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C4022		ECUM1H153KBN	C.CAPACITOR CH 50V 0.015U	1	
C4023		ECQV1H683JZ	P.CAPACITOR 50V 0.068U	1	
C4024		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4025		ECUM1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C4026		ECUM1H153KBN	C.CAPACITOR CH 50V 0.015U	1	
C4027		ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C4028		ECEA1CKA220	E.CAPACITOR 16V 22U	1	
C4029		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4030		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4031		ECUM1E223KBN	C.CAPACITOR CH 25V 0.023U	1	
C4032		ECUM1H183KBN	C.CAPACITOR CH 50V 0.018U	1	
C4033		ECEA0JKK100	E.CAPACITOR 6.3V 10U	1	
C4036		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4037		ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C4039		ECUM1H682KBN	C.CAPACITOR CH 50V 6800P	1	
C4041		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4044		ECUM1E683ZFN	C.CAPACITOR CH 25V 0.063U	1	
C4045		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4046		ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C6001		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C6002		ECEA0JSJ151	E.CAPACITOR 6.3V 150U	1	
C6003		ECRJA030E12	V.CAPACITOR	1	
C6004		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C6005		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C6006		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C6007,08		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C6009,10		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C6011		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C6012		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C6013,14		ECEA0JKS220	E.CAPACITOR 6.3V 22U	2	
C6015		ECEA1AKS330	E.CAPACITOR 10V 33U	1	
C6016		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C6017		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C6018,19		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C6020		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C6021		ECUM1E104ZFM	C.CAPACITOR CH 25V 0.1U	1	
C6022		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
			DIODES		
D1001		SFPB-64	DIODE	1	
D1002		MA121	DIODE	1	
D1003		SFPB-54	DIODE	1	
D1004		SFPB-59	DIODE	1	
D1005		SFPB-54	DIODE	1	
D1006		MA141A	DIODE	1	
D1007		DAP202U	DIODE	1	
D1008		MA159	DIODE	1	
D1009		MA3075H	DIODE	1	
D1010		MA721	DIODE	1	
D2001-04		DA204U	DIODE	4	
D2005-08		DAN202U	DIODE	4	
D2009		MA141K	DIODE	1	
D2010		MA141A	DIODE	1	
D2011		MA141K	DIODE	1	
D2013,14		MA141K	DIODE	2	
D3501		DAN202U	DIODE	1	
D3502		DA204U	DIODE	1	
D6001		MA141A	DIODE	1	
D6002		DAP202U	DIODE	1	
D6004		MA159	DIODE	1	
D6007		DAP202U	DIODE	1	
D6008,09		DAN202U	DIODE	2	
D6010		MA141K	DIODE	1	
D6012,13		MA141A	DIODE	2	
D6014		DAP202U	DIODE	1	
D6015		MA141A	DIODE	1	
D6016		MA141K	DIODE	1	
D6017		MA141A	DIODE	1	
D6018		DA204U	DIODE	1	
D6020		MA141A	DIODE	1	
D6021		DAP202U	DIODE	1	
D6024		MA3056	DIODE	1	
			ICS		
IC1001		TL1453CNS	IC	1	
IC1002		UPC358G2	IC	1	
IC1003		LM2903M	IC	1	
IC1004		UN215	IC	1	
IC1005		UPC358G2	IC	1	
IC2001		MN67461VDTF	IC	1	
IC2002		AN3798NS	IC	1	
IC2003		MN1551VYJS4	IC	1	
IC4001		UPC1513G	IC	1	
IC4002		UPC2300G	IC	1	
IC6001		UPD75108G793	IC	1	
IC6002		S81250HGRD	IC	1	
IC6003		UPD6142G101A	IC	1	
IC6004		S3500A2	IC	1	
IC6005		M54543ASL	IC	1	
IC6006		MN12821Q	IC	1	
IC6007		UPD4094BG	IC	1	
			JACKS		
J1001		VJJ0165	DC JACK	1	
J3501		VJS1980	AV OUTPUT TERMINAL	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
J6001		VJJ0163	EVF CONNECTOR	1	
J6002		VJJ0169	REMOTE CONTROL JACK	1	
			COILS		
L1001		ELC06D005	COIL	1	
L1002		ELC10C001	COIL	1	
L1003		ELC08D024	COIL	1	
L1004		ELC08D025	COIL 600UH	1	
L1005		ELC06D005	COIL	1	
L1006		ELC04D002	COIL	1	
L1007		VLQEL05F101K	COIL 100UH	1	
L1008		VLQ0319F221	COIL 220UH	1	
L1009		ELC04D006	COIL 120UH	1	
L1010		VLQ0319F221	COIL 220UH	1	
L3501		VLQEL04F680K	COIL 68UH	1	
L3502,03		VLQEL05F101K	COIL 100UH	2	
L3506		VLQEL04F101K	COIL 100UH	1	
L4001		VLQEL05F101K	COIL 100UH	1	
L4002		VLQEL05F221K	COIL 220UH	1	
L4003		VLQEL07R153J	COIL 15mH	1	
L4004		VLQEL07F822J	COIL 8200UH	1	
L6001		VLQEL05F330J	COIL 33UH	1	
L6002		VLQEL04F221K	COIL 200UH	1	
			CONNECTORS		
P1001		VJP1607T	CONNECTOR(MALE)	1	
P1002		VJS2137	CONNECTOR	1	
P1003		VJP2260	CONNECTOR(MALE)	1	
P2001		VJS2583	CONNECTOR	1	
P3501		VJS2628	CONNECTOR	1	
P3503		VJP2237	CONNECTOR(MALE)	1	
P3504		VJP2272	CONNECTOR(MALE)	1	
P4001		VJP1607T	CONNECTOR(MALE)	1	
P4002		VJP1611T	CONNECTOR(MALE)	1	
P4003		VJP2262	CONNECTOR(MALE)	1	
P4004		VJP2263	CONNECTOR	1	
P4005		VJS2123	CONNECTOR	1	
P6001		VJP2260	CONNECTOR(MALE)	1	
P6003		VJS2110	CONNECTOR(FEMALE)	1	
P6004		VJS1984	CONNECTOR	1	
P6005		VJP2272	CONNECTOR(MALE)	1	
P6009		VJP2271	CONNECTOR(MALE)	1	
P6010		VJP2272	CONNECTOR(MALE)	1	
P6013		VJP2271	CONNECTOR(MALE)	1	
			TRANSISTORS		
Q1001,02		2SB956	TRANSISTOR	2	
Q1003		FMW1	TRANSISTOR-RESISTOR	1	
Q1004		2SB956	TRANSISTOR	1	
Q1005		2SD2177S	TRANSISTOR	1	
Q1006,07		2SB956	TRANSISTOR	2	
Q1009		2SB1218	TRANSISTOR	1	
Q2001		2SD1819	TRANSISTOR	1	
Q3505		XN4601	TRANSISTOR	1	
Q3506		2SC3931	TRANSISTOR	1	
Q3507		XN4608X	TRANSISTOR-RESISTOR	1	
Q3510		2SB1218	TRANSISTOR	1	
Q3511		XN4601	TRANSISTOR	1	
Q3515,16		2SB970X	TRANSISTOR	2	
Q3521		2SC3931	TRANSISTOR	1	
Q3522		2SB970	TRANSISTOR	1	
Q4004		2SD1820	TRANSISTOR	1	
Q4005		2SD1819	TRANSISTOR	1	
Q4006		2SB1219	TRANSISTOR	1	
Q4007		2SD1819	TRANSISTOR	1	
Q6001		FMW1	TRANSISTOR-RESISTOR	1	
Q6003		XN4608X	TRANSISTOR-RESISTOR	1	
Q6005,06		2SD1819	TRANSISTOR	2	
			COMBINATION PARTS		
QR1001		XN4111	TRANSISTOR-RESISTOR	1	
QR1002		IMD2	TRANSISTOR-RESISTOR	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
QR1004		GA1F4M	TRANSISTOR-RESISTOR	1	
QR1005		IMD2	TRANSISTOR-RESISTOR	1	
QR1006		GA1L4M	TRANSISTOR-RESISTOR	1	
QR2003		GA1L4M	TRANSISTOR-RESISTOR	1	
QR2004,05		GN1F4Z	TRANSISTOR-RESISTOR	2	
QR2006		GA1L4Z	TRANSISTOR-RESISTOR	1	
QR2007		GA1L4M	TRANSISTOR-RESISTOR	1	
QR2008		FMG1	TRANSISTOR-RESISTOR	1	
QR3503		FMG1	TRANSISTOR-RESISTOR	1	
QR3505		GN1A4M	TRANSISTOR-RESISTOR	1	
QR3511		FMG1	TRANSISTOR-RESISTOR	1	
QR3512		UN5212	TRANSISTOR-RESISTOR	1	
QR4001		GA1F4M	TRANSISTOR-RESISTOR	1	
QR4002		GN1L3Z	TRANSISTOR-RESISTOR	1	
QR4005		GN1L3Z	TRANSISTOR-RESISTOR	1	
QR6001,02		GA1F4Z	TRANSISTOR-RESISTOR	2	
QR6004		GA1F4Z	TRANSISTOR-RESISTOR	1	
QR6005		GN1L4M	TRANSISTOR-RESISTOR	1	
QR6006		GN1A4Z	TRANSISTOR-RESISTOR	1	
QR6008		GA1L4M	TRANSISTOR-RESISTOR	1	
QR6009		XN4316	COMBI.PARTS	1	
QR6010,11		GA1F4Z	TRANSISTOR-RESISTOR	2	
QR6014		GA1L4M	TRANSISTOR-RESISTOR	1	
QR6015		GN1F4M	TRANSISTOR-RESISTOR	1	
QR6016		GA1F4M	TRANSISTOR-RESISTOR	1	
QR6017		GA1L4L	TRANSISTOR-RESISTOR	1	
QR6018		FMG2	TRANSISTOR-RESISTOR	1	
QR6022		GA1F4Z	TRANSISTOR-RESISTOR	1	
QR6024		GN1L4M	TRANSISTOR-RESISTOR	1	
			RESISTORS		
R1001		VRE0034E363	RESISTOR	1	
R1002		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R1003		ERJ3GEYJ124	M.RESISTOR CH1/20W 120K	1	
R1004		ERJ8GCYJ821	M.RESISTOR CH 1/8W 820	1	
R1005		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R1006		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R1007		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R1008		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R1009		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R1010		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R1011,12		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	2	
R1013		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R1014		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R1016		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R1017		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R1018		ERJ8GCYJ821	M.RESISTOR CH 1/8W 820	1	
R1019		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R1020		ERJ8GCYJ681	M.RESISTOR CH 1/8W 680	1	
R1021		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R1023		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R1024		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R1025		ERJ6GMYJ822	M.RESISTOR CH 1/10W 8.2K	1	
R1026		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R1027		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R1028		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R1029,30		ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	2	
R1031		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R1032		ERJ6GMYJ153V	M.RESISTOR CH 1/10W 15K	1	
R1033		ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R1034		ERJ6GMYG154	M.RESISTOR CH1/10W 150K	1	
R1035		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R1036		ERJ6GMYJ561	M.RESISTOR CH1/10W 560	1	
R1037		ERJ8GCYJ330	M.RESISTOR CH 1/8W 33	1	
R1038		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R1039		ERJ8GCYJ560	M.RESISTOR CH 1/8W 56	1	
R1040		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R1041		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R1042		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R1043		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R1044,45		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R1046		VSF0059	FUSE	1	
R1047		VSF0015A15	FUSE	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R1048		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R1049		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R1050		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R1051		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R1052		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R1060		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R1061		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R2001,02		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R2003		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R2004		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R2005,06		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R2007		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R2009		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R2010		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R2011		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	1	
R2012		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R2013		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R2014		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R2015		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R2016		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R2017		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R2018		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R2019		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R2020		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R2022		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R2024		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R2025		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R2026		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R2028		ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R2029		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R2030		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R2031		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R2032		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R2033		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R2034		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R2035		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R2036		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R2038		ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R2041		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R2043		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R2045		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R2046		ERJ8GCY0R00	M.RESISTOR CH 1/8W 0.00	1	
R2047		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R2048		ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R2049-51		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	3	
R2052		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R2053		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R2054		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R2055		ERJ3GEYJ184	M.RESISTOR CH1/20W 180K	1	
R2056		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R2057		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R2059		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R2061		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R2062		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R2063		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3503		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R3515		ERJ6GMY0R00	M.RESISTOR CH 1/10W	1	
R3518		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R3519		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R3520		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R3521		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3526		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3527		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3528		ERJ3GEYJ560	M.RESISTOR CH1/20W 56	1	
R3529		ERJ3GEYJ220	M.RESISTOR CH1/20W 22	1	
R3530		ERJ6GMYJ821	M.RESISTOR CH 1/10W 820	1	
R3531		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R3532		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R3533		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R3534		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R3535		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R3536		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R3537		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3540		ERJ6GMYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R3541-43		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	3	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3544		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R3545		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R3546		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3547		ERJ3GEG681	M.RESISTOR CH 3W 680	1	
R3548		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R3549		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R3552		ERJ3GEYG471	M.RESISTOR CH1/20W 470	1	
R3557,58		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	2	
R3559		ERJ3GEG681	M.RESISTOR CH 3W 680	1	
R3563		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R3567		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R3568		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3569,70		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	2	
R4009,10		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	2	
R4013		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R4014		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R4015		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4016		ERJ3GEYJ184	M.RESISTOR CH1/20W 180K	1	
R4017		ERJ3GEYJ181	M.RESISTOR CH1/20W 180	1	
R4018		ERJ3GEYJ151	M.RESISTOR CH1/20W 150	1	
R4019		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R4020-22		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	3	
R4023		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R4024		ERJ3GEYJ100	M.RESISTOR CH1/20W 10	1	
R4025		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R4026		ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R4029		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4030		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R4032		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R4033		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R4034		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R4035		ERJ3GEYJ181	M.RESISTOR CH1/20W 180	1	
R4036		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R4040		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R4041		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R4042		ERJ3GEYJ684	M.RESISTOR CH1/20W 680K	1	
R4043		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R4045		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R4046		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R4051		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R4052		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R4053		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R4055		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R6001		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6004		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R6006		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R6007-09		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	3	
R6010		ERJ6GMYJ683	M.RESISTOR CH 1/10W 68K	1	
R6011		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6012		ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R6014		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	1	
R6015		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R6016		ERJ6GMYJ683	M.RESISTOR CH 1/10W 68K	1	
R6017		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R6018		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R6019		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R6020		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6021		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R6022		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R6023		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R6024		ERJ3GEYJ124	M.RESISTOR CH1/20W 120K	1	
R6025		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R6026		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R6027		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R6028		ERJ3GEYJ124	M.RESISTOR CH1/20W 120K	1	
R6029		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6030,31		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	2	
R6032		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6033		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R6034		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R6035		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R6036		ERJ3GEYJ184	M.RESISTOR CH1/20W 180K	1	
R6037,38		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R6039		ERJ6GMYJ683	M.RESISTOR CH 1/10W 68K	1	
R6040		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R6043		ERJ6GMYJ100	M.RESISTOR CH1/10W 10	1	
R6044		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6045		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R6046		ERJ3GEYJ184	M.RESISTOR CH1/20W 180K	1	
R6047		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6048		ERJ3GEYJ394	M.RESISTOR CH1/20W 390K	1	
R6049		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R6050,51		ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	2	
R6052,53		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R6054		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R6055,56		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R6057-60		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	4	
R6061		ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R6062		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R6063		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R6064-67		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	4	
R6068		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R6069		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R6070-73		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	4	
R6074		ERJ6GMYJ331	M.RESISTOR CH 1/10W 330	1	
R6075		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	1	
R6076		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R6077		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R6078		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R6079		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6080		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R6081		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6082,83		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	2	
R6084		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6085		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R6086		ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R6087		ERJ8GCYJ332	M.RESISTOR CH 1/8W 3.3K	1	
R6088,89		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	2	
R6090		ERJ6GMYJ683	M.RESISTOR CH 1/10W 68K	1	
R6091,92		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	2	
			SWITCHES		
SW6001,02		EVQQFV02K	SWITCH	2	
SW6003,04		EVQQSH04K	SWITCH	2	
			TRANSFORMERS		
T1001		ELL10R018	TRANSFORMER	1	
T4001		EIQ7QF017Q	TRANSFORMER	1	
T4002		EIQ5QT006Q	TRANSFORMER	1	
			VARIABLE RESISTORS		
VR1001		EVM7JSX30B23	V.RESISTOR 2K	1	
VR1002		EVM7JSX30B13	V.RESISTOR 1K	1	
VR1003		EVM7JSX30B53	V.RESISTOR 5K	1	
VR2001		EVM7JSX30B15	V.RESISTOR 100K	1	
VR4001		EVM7JSX30B23	V.RESISTOR 2K	1	
VR4002		EVM7JSX30B54	V.RESISTOR 50K	1	
VR6001		EVM7JSX30B24	V.RESISTOR 20K	1	
			CRYSTAL OSCILLATORS		
X2001		VSX0154	CRYSTAL OSCILLATOR	1	
X6001		VSX0299	CRYSTAL OSCILLATOR	1	
X6002		VSX0249	CRYSTAL OSCILLATOR	1	
			MISCELLANEOUS		
		VSC2642	POWER SHIELD CASE (TOP)	1	
		VSC2643	POWER SHIELD CASE (BOTTOM)	1	
		VMZ1328	SHIELD PLATE	1	
		VMX1563	SHIELD PLATE	1	
		VMZ1339	INSULATION SHEET	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEP03617B	LUMINANCE & CHROMINANCE		
			PACK C.B.A.		(NLA)
			CAPACITORS		
C3001		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C3002		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3003		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3004,05		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C3006		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	1	
C3007		ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C3008		ECUM1H390JCV	C.CAPACITOR CH 50V 39P	1	
C3010		ECUM1H471KBV	C.CAPACITOR CH 50V 470P	1	
C3011		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3012		ECEA1CKS220	E.CAPACITOR 16V 22U	1	
C3013,14		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C3015,16		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	2	
C3017		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3018		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	1	
C3019		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C3020		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3021		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3022		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C3023,24		ECEA0JSJ151	E.CAPACITOR 6.3V 150U	2	
C3025		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3026		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C3027		ECEA1CSN4R7	E.CAPACITOR 16V 4.7U	1	
C3028		ECST1VY104ZR	T.CAPACITOR 35V 0.1U	1	
C3029		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C3032		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3033-37		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	5	
C3038		ECUM1H681JN	C.CAPACITOR CH 50V 680P	1	
C3039		ECUM1H470JCV	C.CAPACITOR CH 50V 47P	1	
C3043		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3044		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	1	
C3046		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3048		ECUM1H471KBV	C.CAPACITOR CH 50V 470P	1	
C3050		ECEA1HKS2R2	E.CAPACITOR 50V 2.2U	1	
C3051		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3052		ECUM1H101JV	C.CAPACITOR CH 50V 100P	1	
C3053		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3054		ECUM1H560JCV	C.CAPACITOR CH 50V 56P	1	
C3056		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C3057		ECEA1HKS2R2	E.CAPACITOR 50V 2.2U	1	
C3058		ECUM1H273ZFN	C.CAPACITOR CH 50V 0.027U	1	
C3060		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3076-78		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C3079		ECUM1E223ZFV	C.CAPACITOR CH 25V 0.022U	1	
C3082		ECUM1H100CCV	C.CAPACITOR CH 50V 10P	1	
C3083-86		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	4	
C3088		ECUM1H102JCN	C.CAPACITOR CH 50V 1000P	1	
C3089		ECUX1H471JN	C.CAPACITOR CH 50V 470P	1	
C3090		ECUM1C473ZFV	C.CAPACITOR CH 16V 0.047U	1	
C3091		ECUX1H471JN	C.CAPACITOR CH 50V 470P	1	
C3092		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3093		ECUM1H560JCV	C.CAPACITOR CH 50V 56P	1	
C3094		ECUM1H391JCN	C.CAPACITOR CH 50V 390P	1	
C3095		ECUM1H390JCV	C.CAPACITOR CH 50V 39P	1	
C3096		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C3098,99		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C3100		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C3102		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3107		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3108		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C3109		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3110		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	
C3113		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C3114		ECUM1H681KBV	C.CAPACITOR CH 50V 680P	1	
C3115		ECUM1H392KBV	C.CAPACITOR CH 50V 3900P	1	
C3116		ECUM1H560JCV	C.CAPACITOR CH 50V 56P	1	
C3117		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C8001		ECEA1CKK100	E.CAPACITOR 16V 10U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C8002		ECUM1E223ZFV	C.CAPACITOR CH 25V 0.022U	1	
C8003		ECUM1H271JV	C.CAPACITOR CH 50V 270P	1	
C8004		ECUM1H471KBV	C.CAPACITOR CH 50V 470P	1	
C8005		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C8006-18		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	13	
C8019		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C8020		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C8021		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C8022		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C8023,24		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C8025		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C8026		ECUM1H030CCV	C.CAPACITOR CH 50V 3P	1	
C8027		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C8028		ECEA0JSJ151	E.CAPACITOR 6.3V 150U	1	
C8029		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C8030		ECUM1H101JCV	C.CAPACITOR CH 50V 100P	1	
C8031-35		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	5	
C8036		ECUM1C474ZFM	C.CAPACITOR CH 16V 0.47U	1	
C8037		ECUM1H680JCV	C.CAPACITOR CH 50V 68P	1	
C8038		ECUM1H332KBV	C.CAPACITOR CH 50V 3300P	1	
C8039		ECEA1HKK0R1	E.CAPACITOR 50V 0.1U	1	
C8041		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C8043		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C8045		ECUM1H390JCV	C.CAPACITOR CH 50V 39P	1	
C8047,48		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C8049		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C8050		ECUM1H153ZFV	C.CAPACITOR CH 50V 0.015U	1	
C8051		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C8052		ECUM1H221JV	C.CAPACITOR CH 50V 220P	1	
C8061		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C8062		ECUM1H270JCV	C.CAPACITOR CH 50V 27P	1	
C8063		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C8064		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8065		ECUM1H100CCV	C.CAPACITOR CH 50V 10P	1	
C8066		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C8068		ECUM1H390JCV	C.CAPACITOR CH 50V 39P	1	
C8069		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8070		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C8071		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C8072		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C8075,76		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C8077		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8078		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C8080		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C8081		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C8082		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C8085		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8086		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C8095		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8102		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C8105		ECST1VY104ZR	T.CAPACITOR 35V 0.1U	1	
C8108		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C8111		ECEA1CKA101	E.CAPACITOR 16V 100U	1	
C8112		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8114,15		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C8116		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C8117		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C8118		ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C8501		ECUM1E223ZFV	C.CAPACITOR CH 25V 0.022U	1	
C8502		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8503		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C8504		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8506-08		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	3	
C8509		ECUM1H680JCV	C.CAPACITOR CH 50V 68P	1	
C8510		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8511,12		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	2	
C8513		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8514,15		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C8516		ECUM1H152KBV	C.CAPACITOR CH 50V 1500P	1	
C8517		ECUM1H332KBV	C.CAPACITOR CH 50V 3300P	1	
C8518		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C8519,20		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
			DIODES		

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
D3001,02		DAN202U	DIODE	2	
D3003		MA141K	DIODE	1	
D3004		DAN202U	DIODE	1	
D8001		MA141K	DIODE	1	
D8002		MA141A	DIODE	1	
D8003		MA121	DIODE	1	
			DELAY		
DL8001		VLD0174	DELAY	1	
			FILTERS		
FL3001		ELB4C014	FILTER	1	
FL3003		ELB4A010	FILTER	1	
FL3004		VLF0720	FILTER	1	
FL8001		ELB4B010	FILTER	1	
FL8002		ELB4B048	FILTER	1	
FL8003		VLF0625	FILTER	1	
FL8004		VLF0797T	FILTER	1	
FL8008		ELB4B024	FILTER	1	
FL8009		VLF0750	FILTER	1	
FL8501		VLF0733	FILTER	1	
			ICS		
IC3002		MST001MS	IC	1	
IC3003		AN3237FB	IC	1	
IC3004		MSM6965-3MS	IC	1	
IC8001		M52059FP	IC	1	
IC8002		MSM6989MS	IC	1	
IC8003		BA7131F	IC	1	
IC8006		MST001MS	IC	1	
IC8501		AN3592S	IC	1	
			COILS		
L3002		VLQ0163F180	COIL 18UH	1	
L3005		VLQ0163J101	COIL 100UH	1	
L3006		VLQ0163J121	COIL 120UH	1	
L3007		VLQ0163J221	COIL 220UH	1	
L3008		VLQ0163K3R9	COIL 3.9UH	1	
L3009		VLQ0163J121	COIL 120UH	1	
L3010		VLQEL05F101K	COIL 100UH	1	
L3011		VLQEL04F101K	COIL 100UH	1	
L3012		VLQEL05F101K	COIL 100UH	1	
L3014		VLQEL05F101K	COIL 100UH	1	
L3016		VLQEL05F101K	COIL 100UH	1	
L3017		VLQ0163J151	COIL 150UH	1	
L3018		VLQ0163J330	COIL 33UH	1	
L3019		VLQ0163J150	COIL 15UH	1	
L8003,04		VLQEL05F101K	COIL 100UH	2	
L8005		VLQEL04F101K	COIL 100UH	1	
L8008		VLQ0163K100	COIL 10UH	1	
L8009		VLQ0163K560	COIL 56UH	1	
L8012		VLQEL05F101K	COIL 100UH	1	
L8013		VLQ0163K150	COIL 15UH	1	
L8014		VLQEL05F681K	COIL 680UH	1	
L8015		VLQ0163J121	COIL 120UH	1	
L8016		VLQEL05F101K	COIL 100UH	1	
L8017,18		VLQ0163K101	COIL 100UH	2	
L8019		VLQEL05F101K	COIL 100UH	1	
L8501		VLQ0163K100	COIL 10UH	1	
L8502		VLQ0163K330	COIL 33UH	1	
			CONNECTORS		
P3001		VJS2237	CONNECTOR	1	
P8501		VJR0514	CONNECTOR	1	
P8502		VJR0368	CONNECTOR	1	
			TRANSISTORS		
Q3001		2SD1820	TRANSISTOR	1	
Q3002		2SB1219	TRANSISTOR	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q3003		2SC3931	TRANSISTOR	1	
Q3006,07		2SD1819	TRANSISTOR	2	
Q3009		2SD1819	TRANSISTOR	1	
Q3011		2SC3931	TRANSISTOR	1	
Q3012		2SD1819	TRANSISTOR	1	
Q3015		2SD1819	TRANSISTOR	1	
Q8006,07		2SD1819	TRANSISTOR	2	
Q8013		XN4501	TRANSISTOR	1	
Q8014		2SD1819	TRANSISTOR	1	
Q8016		XN4601	TRANSISTOR	1	
Q8501		2SD1819	TRANSISTOR	1	
Q8502		XN6501	TRANSISTOR	1	
Q8503		XN4501	TRANSISTOR	1	
Q8504		XN4601	TRANSISTOR	1	
			COMBINATION PARTS		
QR3005		XN6212	TRANSISTOR-RESISTOR	1	
QR3011		GA1F4M	TRANSISTOR-RESISTOR	1	
QR3012		GA1L4M	TRANSISTOR-RESISTOR	1	
QR3013		GA1F4M	TRANSISTOR-RESISTOR	1	
QR3017		GA1F4M	TRANSISTOR-RESISTOR	1	
QR3020		GA1F4M	TRANSISTOR-RESISTOR	1	
QR3029		GA1L4M	TRANSISTOR-RESISTOR	1	
QR3035,36		GA1F4M	TRANSISTOR-RESISTOR	2	
QR3038		XN1115	TRANSISTOR-RESISTOR	1	
QR8001		XN6212	TRANSISTOR-RESISTOR	1	
QR8002		GA1F4M	TRANSISTOR-RESISTOR	1	
QR8004,05		GA1F4M	TRANSISTOR-RESISTOR	2	
QR8006		FMW1	TRANSISTOR-RESISTOR	1	
QR8007		FMG2	TRANSISTOR-RESISTOR	1	
QR8008		GA1F4M	TRANSISTOR-RESISTOR	1	
QR8012,13		XN6212	TRANSISTOR-RESISTOR	2	
			RESISTORS		
R3004		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3005		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R3006		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R3008		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R3009		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R3010		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R3013		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3015,16		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R3017		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R3018		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R3019		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R3020		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R3022		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R3023		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3025		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R3027		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3029		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R3030		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R3031,32		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	2	
R3033		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R3036		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R3037		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R3039		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3041		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R3043		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R3045		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R3046,47		ERJ3GEYJ270	M.RESISTOR CH1/20W 27	2	
R3048,49		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	2	
R3050		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R3051		ERJ3GEYJ121	M.RESISTOR CH1/20W 120	1	
R3052		ERJ3GEYJ270	M.RESISTOR CH1/20W 27	1	
R3053		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R3056		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R3057,58		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R3059		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R3060		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R3061,62		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	2	
R3063		ERJ6GMYJ225	M.RESISTOR CH1/10W 2.2M	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3066		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R3067,68		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R3081		ERJ3GEYJ564	M.RESISTOR CH1/20W 560K	1	
R3082		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R3083		ERJ3GEYJ474	M.RESISTOR CH1/20W 470K	1	
R3088		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R3089		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R3090		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R3093		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R3097		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R3100		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3102		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R3103,04		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	2	
R3107		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R3108		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R3109		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R3113		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R3115,16		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R3117		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R3118		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R3119		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3120		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R3121		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R3123		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R3125		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3127		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R3133		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3135		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3136		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R3139,40		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	2	
R3141		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R3143		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3145		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R3147		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R8001-03		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	3	
R8004		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R8005		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8009		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R8010		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R8011		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R8012		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8013		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R8014		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R8015		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R8016		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R8017		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R8018		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R8019		ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R8020		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R8025,26		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R8027		ERJ3GEJ433	M.RESISTOR CH 3W 43K	1	
R8028		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R8029		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8030-33		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	4	
R8036		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R8037		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R8038		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R8039		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R8040,41		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R8042		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R8043		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R8044		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R8045		ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R8046		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R8047		ERJ6GMYJ681	M.RESISTOR CH 1/10W 680	1	
R8048		ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R8049		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R8050		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8051		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R8052		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R8053		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R8054		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R8073		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R8074		ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R8078		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R8079		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R8080		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R8088		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R8095		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R8096		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R8097		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R8100		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R8101		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R8102		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R8103		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R8105		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8106		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R8107,08		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R8109		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R8110		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R8111		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R8113		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R8116		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R8123		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R8501		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R8502		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R8503		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R8504		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R8505		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R8506		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R8507		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R8508		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R8509		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R8510		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R8511		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R8512		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R8513		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R8514		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R8515		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R8516		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R8517		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R8518		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R8519		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R8520		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R8521		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R8522		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8523		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R8524		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R8525,26		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	2	
R8527		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8528		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
			VARIABLE RESISTORS		
VR3001		EVM7JSX30B23	V.RESISTOR 2K	1	
VR3003		EVM7JSX30B24	V.RESISTOR 20K	1	
VR3004		EVM7JSX30B54	V.RESISTOR 50K	1	
VR3005		EVM7NSW00B23	V.RESISTOR 2K	1	
VR3006,07		EVM7JSX30B24	V.RESISTOR 20K	2	
VR3008		EVM7JSX30B53	V.RESISTOR 5K	1	
VR3009		EVM7JSX30B14	V.RESISTOR 10K	1	
VR3013		EVM7JSX30B52	V.RESISTOR 500	1	
VR8001		EVM7NSW00B13	V.RESISTOR 47K	1	
VR8003		EVM7JSX30B14	V.RESISTOR 10K	1	
VR8004		EVM7JSX30B54	V.RESISTOR 50K	1	
VR8005		EVM7JSX30B23	V.RESISTOR 2K	1	
VR8007		EVM7JSX30B24	V.RESISTOR 20K	1	
			CHRISTAL OSCILLATOR		
X8001		VSX0188	CHRISTAL OSCILLATOR	1	
			MISCELLANEOUS		
		VSC2721	BARRIER	1	
	■	VMZ1379	BARRIER		

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEP04276A	Hi-Fi AUDIO C.B.A.		(NLA)
			CAPACITORS		
C4501		ECEA1CKA101	E.CAPACITOR 16V 100U	1	
C4502,03		ECEA1VKG6R8	E.CAPACITOR 35V 6.8U	2	
C4504		ECUM1E223KBN	C.CAPACITOR CH 25V 0.023U	1	
C4505		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C4506		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C4507		ECEA0JSN470	E.CAPACITOR 6.3V 47U	1	
C4508		ECEA1CSN220	E.CAPACITOR 16V 22U	1	
C4509		ECUM1E103KBN	C.CAPACITOR CH 25V 0.01U	1	
C4510		ECEA1VSN2R2	E.CAPACITOR 35V 2.2U	1	
C4511		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4512		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4513		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4514		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C4515		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4516		ECEA1ASN100	E.CAPACITOR 10V 10U	1	
C4517		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C4518		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C4519		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4520,21		ECEA1CKK100	E.CAPACITOR 16V 10U	2	
C4522		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C4523		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4524		ECEA1CSE680	E.CAPACITOR 16V 68U	1	
C4525		ECEA1VSN2R2	E.CAPACITOR 35V 2.2U	1	
C4526		ECUM1E103KBN	C.CAPACITOR CH 25V 0.01U	1	
C4527		ECEA1CSN220	E.CAPACITOR 16V 22U	1	
C4528		ECEA0JSN470	E.CAPACITOR 6.3V 47U	1	
C4529		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C4530		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C4531		ECUM1E223KBN	C.CAPACITOR CH 25V 0.023U	1	
C4532,33		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	2	
C4534		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4535		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C4536		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C4537,38		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	2	
C4539-41		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C4542		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C4543		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4544,45		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C4546		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4547		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C4548		ECUM1H271JV	C.CAPACITOR CH 50V 270P	1	
C4549,50		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C4551,52		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	2	
C4553		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C4554		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C4555		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4556		ECUM1H471KBV	C.CAPACITOR CH 50V 470P	1	
C4557,58		ECEA1CKK100	E.CAPACITOR 16V 10U	2	
C4559		ECQV1H473JZ	P.CAPACITOR 50V 0.047U	1	
C4560		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C4561		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C4562-64		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C4568		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4569		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C4570		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C4571		ECEA0GKS101	E.CAPACITOR 100U	1	
C4575		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C4576		ECEA1CKA101	E.CAPACITOR 16V 100U	1	
C4577		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C4578,79		ECEA1CKK100	E.CAPACITOR 16V 10U	2	
C4580		ECEA1CKS470I	E.CAPACITOR 16V 47U	1	
C4581		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C4582		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C4583		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C4584		ECEA1ASE101	E.CAPACITOR 10V 100U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C4585		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	
C4586		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C4587		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4588		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	
C4589		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C4590		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C4591		ECEA1ASE101	E.CAPACITOR 10V 100U	1	
C4592		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4593		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C4595,96		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C4597,98		ECUM1H272KBV	C.CAPACITOR CH 50V 2700U	2	
C4599,00		ECEA1ASN100	E.CAPACITOR 10V 10U	2	
C4601,02		ECEA1AKA330	E.CAPACITOR 10V 33U	2	
C4603,04		ECEA0JKA101	E.CAPACITOR 6.3V 100U	2	
C4605		ECEA1CKA101	E.CAPACITOR 16V 100U	1	
C4606		ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C4607,08		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	2	
			DIODES		
D4501		DAP202U	DIODE	1	
D4502-06		MA141K	DIODE	5	
D4507		DAN202U	DIODE	1	
D4508,09		MA157	DIODE	2	
D4510		MA141K	DIODE	1	
D4511		DA204U	DIODE	1	
D4513		MA141K	DIODE	1	
D4514,15		MA3056	DIODE	2	
D4516		MA143	DIODE	1	
D4517		MA3056	DIODE	1	
D4521		MA715	DIODE	1	
D4523		MA715	DIODE	1	
			FILTERS		
FL4501		VLF0736	FILTER	1	
FL4502		VLF0735	FILTER	1	
			ICS		
IC4501		AN3972FB	IC	1	
IC4502		AN3932S	IC	1	
IC4503		AN3799S	IC	1	
IC4504		BA3308	IC	1	
			COILS		
L4501		VLQEL05F101K	COIL 100UH	1	
L4503-05		VLQEL05F101K	COIL 100UH	3	
			CONNECTORS		
P4501		VJP1610T	CONNECTOR	1	
P4502		VJS2141	CONNECTOR	1	
P4503		VJS2136	CONNECTOR	1	
P4506		VJP1608T	CONNECTOR(MALE)	1	
P4507		VJP1607T	CONNECTOR(MALE)	1	
			TRANSISTORS		
Q4501		2SD1328	TRANSISTOR CHIP	1	
Q4502		2SB1218	TRANSISTOR	1	
Q4503		2SD1328	TRANSISTOR CHIP	1	
Q4504		2SB1218	TRANSISTOR	1	
Q4505-07		2SD1819	TRANSISTOR	3	
Q4508		2SD1820	TRANSISTOR	1	
Q4509		2SB1218	TRANSISTOR	1	
Q4512		2SD1819	TRANSISTOR	1	
Q4518		2SD1819	TRANSISTOR	1	
Q4519		2SD601	TRANSISTOR CHIP	1	
Q4520		2SB1218	TRANSISTOR	1	
Q4521		2SB956	TRANSISTOR	1	
Q4522,23		2SB970X	TRANSISTOR	2	
Q4524		2SB956	TRANSISTOR	1	
Q4525		2SD1819	TRANSISTOR	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q4526		2SD1328	TRANSISTOR CHIP	1	
Q4527,28		2SA1531	TRANSISTOR	2	
Q4529,30		2SD1819	TRANSISTOR	2	
Q4531,32		XN4601	TRANSISTOR	2	
			COMBINATION PARTS		
QR4501		GA1L4M	TRANSISTOR-RESISTOR	1	
QR4502		GN1L4M	TRANSISTOR-RESISTOR	1	
QR4503		GA1L4M	TRANSISTOR-RESISTOR	1	
QR4504		FMW1	TRANSISTOR-RESISTOR	1	
QR4505-08		GA1L4M	TRANSISTOR-RESISTOR	4	
QR4509		GA1F4Z	TRANSISTOR-RESISTOR	1	
QR4510,11		GA1L4M	TRANSISTOR-RESISTOR	2	
QR4512		FMW1	TRANSISTOR-RESISTOR	1	
QR4513,14		GA1L4M	TRANSISTOR-RESISTOR	2	
QR4515		GN1L4M	TRANSISTOR-RESISTOR	1	
QR4516		FMG2	TRANSISTOR-RESISTOR	1	
			RESISTORS		
R4501		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R4502		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R4503		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R4504,05		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	2	
R4506		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R4507,08		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R4509		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R4510		EROS2CKG1002	M.RESISTOR 1/4W 10K	1	
R4511		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R4512		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R4513		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R4514		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R4515,16		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R4517		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R4518		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R4519		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R4520		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R4521		EROS2CKG1202	M.RESISTOR 1/4W 12K	1	
R4522		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4523		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R4526		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R4527		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R4528		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R4529		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R4530,31		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	2	
R4532		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R4533		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R4534		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4535		ERJ3GEYJ474	M.RESISTOR CH1/20W 470K	1	
R4536,37		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R4538		ERJ3GEYJ474	M.RESISTOR CH1/20W 470K	1	
R4539		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4540		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R4541,42		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	2	
R4543		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R4544		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R4545		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R4546		ERJ3GEYJ121	M.RESISTOR CH1/20W 120	1	
R4547		ERJ3GEYJ390	M.RESISTOR CH1/20W 39	1	
R4548		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R4549		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R4550		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R4551,52		ERJ3GEYJ270	M.RESISTOR CH1/20W 27	2	
R4553		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4554		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R4555		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4556		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R4557		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4558,59		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	2	
R4560		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R4561		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R4562,63		VSF0014A08	IC PROTECTOR	2	
R4564		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R4568		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R4569		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R4570,71		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	2	
R4572		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R4573		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R4574		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R4575		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R4576		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R4577		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R4578		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R4579		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R4580		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R4581		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R4582,83		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	2	
R4584		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R4585		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4586		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R4587		ERJ3GEYJ564	M.RESISTOR CH1/20W 560K	1	
R4588		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R4589		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R4590		VRE0034E163	M.RESISTOR 16K	1	
R4591		VRE0034E273	M.RESISTOR 27K	1	
R4592		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4593,94		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	2	
R4595		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R4596		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R4597		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R4598		ERJ8GCYJ221	M.RESISTOR CH 1/8W 220	1	
R4599		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4600		ERJ3GEYJ124	M.RESISTOR CH1/20W 120K	1	
R4601,02		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	2	
R4603		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R4604		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R4605		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R4606		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4607		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R4608		VRE0034E273	M.RESISTOR 27K	1	
R4609		VRE0034E163	M.RESISTOR 16K	1	
R4610		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R4611		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4612		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R4613,14		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	2	
R4615		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R4616,17		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	2	
R4618,19		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	2	
R4621		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R4622,23		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	2	
R4624-27		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	4	
R4628,29		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	2	
R4630,31		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	2	
R4632,33		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	2	
R4634,35		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	2	
R4636,37		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	2	
R4638,39		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	2	
R4640,41		ERDS2T0	C.RESISTOR 1/4W 0	2	
R4642		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R4643		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R4644		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4645		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4646		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R4647		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4648		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4649,50		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	2	
			VARIABLE RESISTORS		
VR4501,02		EVM7JSX30B14	V.RESISTOR 10K	2	
VR4503		EVM7JSX30B23	V.RESISTOR 2K	1	
VR4504		EVM7JSX30B24	V.RESISTOR 20K	1	
VR4505		EVM7JSX30B54	V.RESISTOR 50K	1	
VR4507		EVM7JSX30B14	V.RESISTOR 10K	1	
VR4508		EVM7JSX30B24	V.RESISTOR 20K	1	
VR4509		EVM7JSX30B53	V.RESISTOR 5K	1	
VR4510		EVM7JSX30B15	V.RESISTOR 100K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEP06515C	OPERATION C.B.A.		(NLA)
D6301,6302		MA151A	DIODE	2	
D6303		MA151WA	DIODE	1	
D6305-6311		LN1261C	LED	7	
QR6301		UN2114	TRANSISTOR-RESISTOR	1	
R6301		ERJ8GMYJ330	C.RESISTOR CH 1/8W 33	1	
R6302,6303		ERJ6GMYJ330	C.RESISTOR CH 1/10W 33	2	
R6304		ERJ6GMYJ103	C.RESISTOR CH 1/10W 10K	1	
R6305		ERJ6GMYJ181	C.RESISTOR CH 1/10W 180	1	
R6306		ERJ6GMYJ221	C.RESISTOR CH 1/10W 220	1	
R6307		ERJ6GMYJ271	C.RESISTOR CH 1/10W 270	1	
R6308		ERJ6GMYJ471	C.RESISTOR CH 1/10W 470	1	
R6309		ERJ6GMYJ820	C.RESISTOR CH 1/10W 820	1	
R6310		ERJ6GMYJ182	C.RESISTOR CH 1/10W 1.8K	1	
R6311		ERJ6GMYJ330	C.RESISTOR CH 1/10W 33	1	
P6301		VJS2694	CONNECTOR(18P)	1	
P6302		VJS2695	CONNECTOR(5P)	1	
P6303		VJS2696	CONNECTOR(6P)	1	
	■	VEK4033	SUB OPERATION C.B.A.		(NLA)
			DIODES		
D6401-03		MA165	DIODE	3	
D6404		PG2222SY	DIODE	1	
P6401		VJS2582B006	CONNECTOR	1	
P6402		VJP1608T	CONNECTOR(MALE)	1	
			RESISTORS		
R6401		ERDS2TJ391	C.RESISTOR 1/4W 390	1	
R6402		ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
			SWITCHES		
SW6401,02		EVQQSU04W	SWITCH	2	
SW6403		ESD1132333	SWITCH	1	
SW6404		ESD1131233	SWITCH	1	
	■	VEK3970	START/STOP SW C.B.A.		(NLA)
S1501		EVQQSU04W	SWITCH	1	
	■	VEK3976	EARPHONE JACK C.B.A.		(NLA)

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			CAPACITORS		
C4301		ECEA1CKS470	E.CAPACITOR 16V 47U	1	
J4301		VJJ0203	EARPHONE JACK	1	
			RESISTORS		
R4301		ERDS2TJ820	C.RESISTOR 1/4W 82	1	
	■	VEK3455	TAKE-UP REEL SENSOR C.B.A.		(NLA)
		ON2170LF	IC	1	

Panasonic
MATSUSHITA ELECTRIC

Printed in Japan